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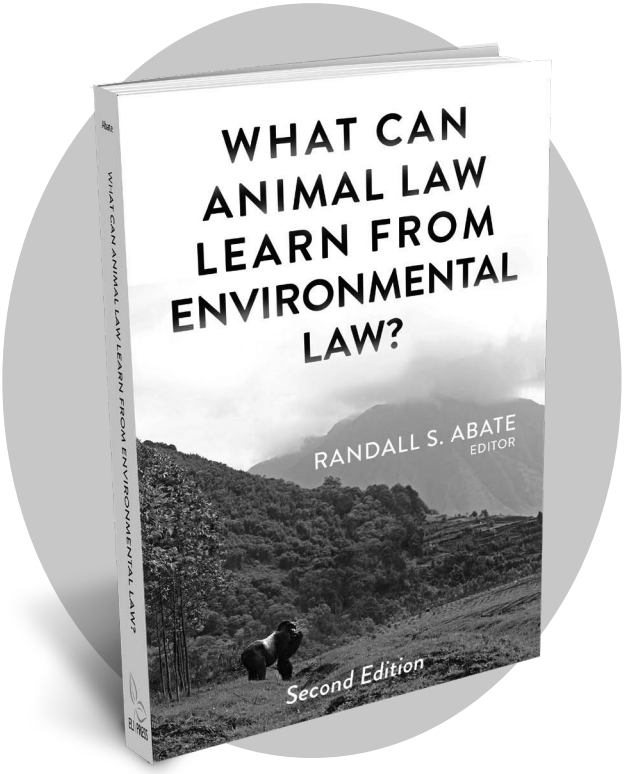
What Can Animal Law Learn From Environmental Law? 2d Ed.

By Randall S. Abate, Editor

With its intricate layers of international, federal, and state protections, environmental law is more established than animal law. Yet, animal law faces many of the same legal and strategic challenges that environmental law faced in seeking to establish a more secure foothold in the United States and abroad. As such, animal law stands to gain valuable insights from the lessons of the environmental law movement.



In the Second Edition of this book, Prof. Randall S. Abate, the inaugural Rechnitz Family and Urban Coast Institute Endowed Chair in Marine and Environmental Law and Policy at Monmouth University, has assembled an experienced team of 36 academics, advocates, and legal professionals from the environmental and animal law fields to examine the experiences of these two fields. Drawing on lessons from history, politics, and law, the 29-chapter book examines how environmental law's successes and shortcomings can inform animal law, and how the two fields can work together to secure mutual gains in the future.

Highlights from the Second Edition

- Three new chapters addressing how food law and policy can be a valuable mechanism for enhanced protection of animals. Coverage includes consumer protection litigation involving false advertising claims, industry challenges to plant-based meat and milk, and animal and environmental law and policy considerations concerning lab-grown meat.
- Expanded coverage of cutting-edge procedural topics with three new chapters on impact assessment, enforcement, and regulatory avoidance.
- Expanded coverage of climate change with two new chapters addressing innovative proposals for enhanced protection of animals in the face of this crisis.
- New chapters on a range of pressing themes at the intersection of animal and environmental law and policy including rights of nature, greenwashing and humane washing, animal testing, and an emerging area known as "animal socioequality."

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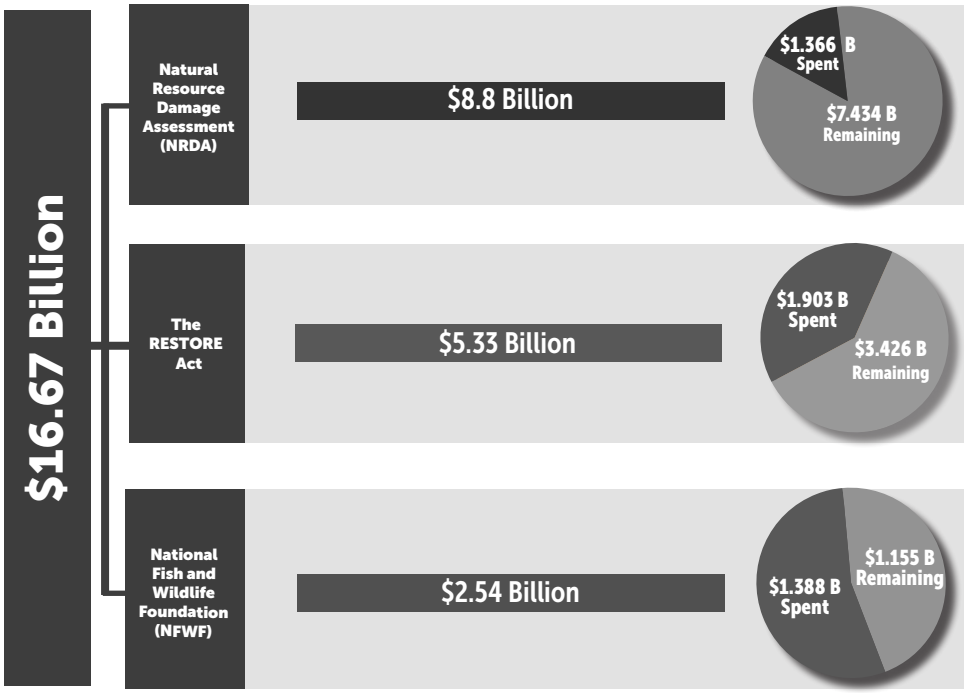
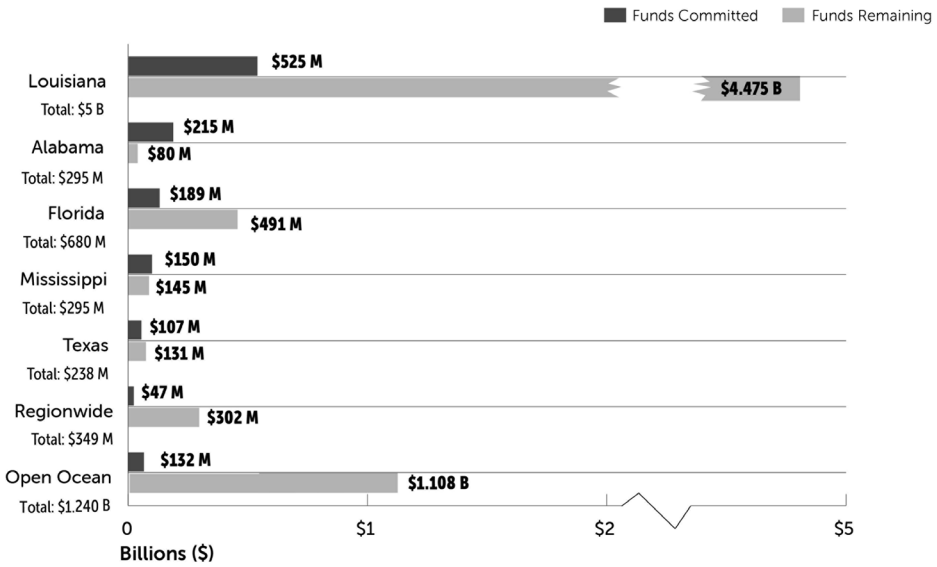
BEYOND WORDS

Status of BP Oil Spill Restoration Funding, as of March 1, 2020



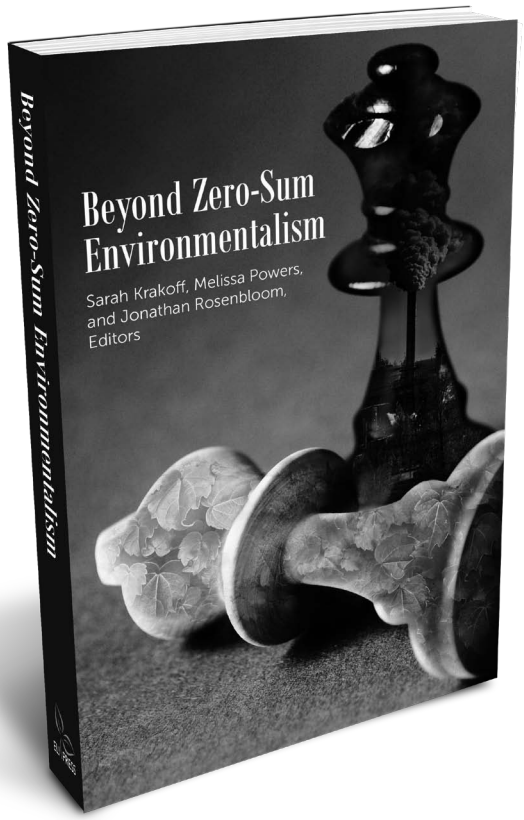
Natural Resource Damage Assessment (NRDA) NRDA Funds Committed by Restoration Area



Source: ELI, *Gulf Coast Recovery & Restoration:10-Year Review* (April 2020), *at* http://eli-ocean.org/wp-content/blogs.dir/2/files/Overview-of-Gulf-Restoration-Fact-Sheets-BP10.pdf.

Beyond Zero-Sum Environmentalism

Sarah Krakoff, Melissa Powers, and Jonathan Rosenbloom, Editors



Environmental law and environmental protection have long been portrayed as requiring trade offs between incompatible ends: "jobs versus environment"; "markets versus regulation"; "enforcement versus incentives." Behind these views are a variety of concerns, including resistance to government regulation, skepticism about the importance or extent of environmental harms, and sometimes even pro-environmental views about the limits of Earth's carrying capacity. This framework is perhaps best illustrated by the Trump Administration, whose rationales for a host of environmental and natural resources policies have embraced a zero-sum approach, seemingly preferring a world divided into winners and losers. Given the many significant challenges we face, does playing the zero-sum game cause more harm than good? And, if so, how do we move beyond it?

This book is the third in a series of books authored by members of the Environmental Law Collaborative (ELC), an affiliation of environmental law professors that began in 2011. In *Beyond Zero-Sum Environmentalism*, the authors tackle the origins and meanings of zero-sum frameworks and assess their implications for natural resource and environmental protection. The authors have different angles on the usefulness and limitations of zero-sum framing, but all go beyond the oversimplified view that environmental protection always imposes a dead loss on some other societal value.

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DIALOGUE

JUMPING THROUGH *HOOPA*: COMPLICATING THE CLEAN WATER ACT FOR THE STATES

SUMMARY

Section 401 certification and permit conditioning under the Clean Water Act is one of the most significant tools for states to influence federally permitted activities involving discharges into navigable waters. However, states are required to set conditions within one year or they forgo their ability to do so. In practice, the one-year review is difficult for states to meet and led to a common practice known as "withdraw and resubmit" in which states could reset the clock. But in *Hoopa Valley Tribe v. Federal Energy Regulatory Comm'n*, the D.C. Circuit unanimously struck down this practice. Because the U.S. Supreme Court denied review, states now have one calendar year to issue their water quality certifications and decide if any conditions should be included. On March 17, 2020, the Environmental Law Institute hosted an expert panel that explored the ramifications of the *Hoopa* decision on states and §401 permit applicants. Below, we present a transcript of the discussion, which has been edited for style, clarity, and space considerations.

James M. McElfish (moderator) is Director of the Sustainable Use of Land Program and Senior Attorney at the Environmental Law Institute.
Rick Glick is a Partner at Davis Wright Tremaine LLP.
Sharon White is Of Counsel at Van Ness Feldman LLP.

James McElfish: Thanks for joining us on today's panel. Sharon White and Rick Glick bring decades of experience to our topic, dealing in many respects with infrastructure, permitting of dams, and licensing and relicensing considerations with practices involving the Federal Energy Regulatory Commission (FERC). I look forward to their discussion of the *Hoopa Valley Tribe* case,[1] §401 of the Clean Water Act (CWA),[2] and other topics as they arise.

I want to say a bit about §401. That's a provision that is extremely well known to the states and to applicants, and maybe less well known to the general public and CWA enthusiasts. It's one of the oldest parts of the modern-era CWA. The Federal Water Pollution Control Act (FWPCA) of 1948[3] was amended a number of times through the 1960s, but primarily was research-oriented and dealt with some issues related to large cities and mainstem rivers. But in 1970, the U.S. Congress amended the FWPCA to add a process known as water quality certification.[4] That provision is what is codified two years later as §401 of the CWA.

The U.S. Environmental Protection Agency (EPA) regulations that describe how §401 is carried out by EPA in the states were issued in 1971.[5] So, the regulations that we're operating under to this day were actually issued the year before the 1972 amendments to the FWPCA.[6] The amendments in 1972 made some minor changes to §401, but left it largely intact.

I want to review some of the relevant provisions in §401 to set the stage for today's discussion. Pursuant to the Act, most states have been delegated authority from EPA to develop water quality standards for navigable waterways within their jurisdiction. Section 401 was basically designed as a way to provide states, which, predating the modern Act and continuing through the modern Act, have primary jurisdiction over water quality standards, with an oversight or a check on federal licensing or permitting activities that might affect those states' water quality. As amended, §401(a) of the CWA reads: "Any applicant for a Federal license or permit to conduct any activity . . . which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency [that is the federal agency] a certification from the State . . . that any such discharge will comply with the applicable provisions" that are listed in that section of the Act, but that primarily deal with protections of water quality.

So, a certification has to be provided to the federal agency by the applicant, and that certification is provided by the state. Section 401(a) also states: "No license or permit shall

1. Hoopa Valley Tribe v. Federal Energy Regulatory Comm'n, 913 F.3d 1099, 49 ELR 20015 (D.C. Cir. 2019).
2. 33 U.S.C. §§1251-1387, ELR Stat. FWPCA §§101-607.
3. Federal Water Pollution Control Act, Pub. L. No. 80-845, 62 Stat. 1155 (1948).
4. Water Quality Improvement Act of 1970, Pub. L. No. 91-224, 84 Stat. 91.
5. 40 C.F.R. §121 (1971).
6. Federal Water Pollution Control Act Amendments, Pub. L. No. 92-500, 86 Stat. 816 (1972).

be granted until the certification required by this section has been obtained or," noteworthy for today's discussion, "has been waived." No license or permit shall be granted, no-way no-how, if certification has been denied. Thus, if a state denies certification that the discharge will meet the water quality standards, that ends the matter as far as the federal permitting and licensing agency is concerned.

But the other provision of §401(a) that we're going to focus on is: if the state, or interstate agency—which sometimes provides the certifications—or the Administrator where EPA is responsible, as the case may be, "fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request, the certification requirements of this subsection shall be waived with respect to such Federal application."

In other words, if the state receives a request for certification and fails to act on it within a reasonable period, bounded by the statute to one year, that ends the matter and there's no requirement for a certification in order to get the license. That is the crux of the *Hoopa Valley Tribe* decision that we'll be talking about.

Section 401(d) also says something about the content of state certifications. Most activities requiring a license or a permit from a federal agency don't end up in a denial of water quality certification, but many of them end up with conditions that are imposed by the state. Conditions often include things like complying with instream-flow requirements, or complying with protection of fisheries, or obtaining a state sediment and erosion control permit. Section §401(d) says that "[a]ny certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with [the Clean Water Act]," and, noteworthy, "with any other appropriate requirement of State law set forth in such certification."

These become conditions on a federal license or permit subject to the provisions of §401. States are frequently in a position to grant a certification but require certain reporting, or monitoring, or other requirements. This often becomes an issue at hand in licensing or relicensing of a hydroelectric power facility, or §401 certification related to a U.S. Army Corps of Engineers (the Corps) permit or other permit for wetlands dredge and fill or stream crossings under §404. This has arisen quite a bit in the context of pipelines and the like.

This §401 certification is particularly important to states, territories, and tribes because they integrate this into their water quality and dredge-and-fill permit programs. More than 20 states have built their entire freshwater wetlands programs on §401 certification. They have no state regulations that say you need a state permit for dredge and fill in waters in the state, but they rely on the §401 review and condition process for their regulatory power.

Many states coordinate §401 certification applications with applications to the Corps for §404 permits. There's often a memorandum of understanding on joint permit applications and the like in particular states. States also deal with certification of Corps nationwide permits and state programmatic general permits by deciding which of those permits will be allowed to operate in those states, and sometimes attach individual state conditions to the use of §404 nationwide permits. This doesn't occur only where there's an individual permit application, but oftentimes where the Corps has proposed these nationwide permits that are applicable for commonly occurring activities.

Section 401 applies to a great variety of activities requiring federal permits and licenses. Some states have very expansive regulations and administrative review processes including appeals, administrative review, and other things that apply to §401. In many cases, these processes end up taking more than the one year that is provided for in §401(a).

The *Hoopa Valley Tribe* case involves a FERC relicensing. It's one in which the state, in order to deal with a prolonged §401 certification, entered into an agreement with the applicant whereby each year the §401 request for certification would be withdrawn and then would be resubmitted, in effect restarting the one-year limitation over time. Last summer, the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit said you can't do that. The statute says a year means a year. At least in the case of a collusive year-after-year resubmission or reapplication, that will not suffice. So then the §401 certification is waived.

Because the situation has arisen in many other instances—including pipeline applications at FERC, dam relicensing, and other things—*Hoopa Valley Tribe* has become particularly prominent in a number of noteworthy cases, including on the Constitution Pipeline in New York, in which a certification was denied and the U.S. Court of Appeals for the Second Circuit had upheld the state of New York.[7] But in light of *Hoopa Valley Tribe*, FERC said, well, it's been waived, you can go ahead. (For other reasons, the Constitution Pipeline recently decided to withdraw its application.[8]) In the Exelon relicensing of the Conowingo Dam on the Susquehanna River, the lengthy process there has been affected by *Hoopa Valley Tribe*.[9]

One final note: EPA last August proposed to rewrite pretty extensively the §401 certification regulations that were originally promulgated in 1971.[10] That rewrite attracted a great deal of comment, particularly from states that rely on §401 for their processes.

We're going to lead off our panel with Rick Glick, who will talk primarily about the *Hoopa Valley Tribe* decision and its implication for FERC and other cases. We're going to follow up with Sharon White who will add to that array of discussion. We'll cover to some degree the EPA rule-

7. Constitution Pipeline Co., LLC v. New York State Dept. of Envtl. Conservation, 868 F.3d 87 (2d. Cir. 2017), *cert. denied*, 138 S. Ct. 1697 (2018).
8. Constitution Pipeline, *Feb. 24 Media Statement*, https://constitutionpipeline.com/ (last visited Apr. 22, 2020).
9. Joint Offer of Settlement and Explanatory Statement of Exelon Generation Company, LLC and the Maryland Department of the Environment, Nos. P-405-106 and P-405-121 (Oct. 29, 2019), https://mde.maryland.gov/programs/Water/WetlandsandWaterways/Documents/Conowingo_Settlement.pdf.
10. U.S. EPA, Updating Regulations on Water Quality Certification, 84 Fed. Reg. 44080 (Aug. 22, 2019).

making, then we'll circle back for some discussion, and then questions.

Rick Glick: Thank you, Jim. Before we get to the *Hoopa Valley Tribe* case, it'd be good to get a bit of background beyond what Jim had suggested is special about §401, and why it's so key to development projects.[11]

First, one of the things that I want to emphasize is that the §401 authority is very broad. It's not just about water quality standards. It also mentions other appropriate requirements of state law. States have certainly seized upon that as an opportunity to use the §401 process to impose state policy and state priorities in a federal licensing context. The intent was to allow that to happen, I think, at some level. Cooperative federalism is the goal, to provide a meaningful role for states and a process at the federal level that could affect state waters in a significant way. But the reality has been years of delay and potential for veto, and state impositions are very expensive and onerous sometimes, the conditions that go along with the §401 process.

The one-year period that Jim mentioned starts when the application is filed. States have argued that they have to deem the application complete before the clock starts running. That has been stricken down by the courts.[12] So, it begins the day that application is filed and it all has to be completed within one year. There also is authority in the Northwest that the one-year period is inclusive of any state appellate processes.[13] That is, any changes to the certification resulting from the appeal would have no legal effect on the federal permitting agency. The state would have to find other ways of addressing these concerns.

FERC has long criticized the state process suggesting or demanding that applicants withdraw and refile to avoid the one-year period, but acquiesced to it. FERC policy had been that, once states did that and once the application was refiled, the clock did start anew. That has changed.

In the hydropower context, §401 plays an interesting role. There is a line of cases that is quite direct that says that the Federal Power Act, which controls licensing of hydroelectric projects on navigable waters, preempts the states from duplicative regulatory authority with FERC. So, if the state intends to or attempts to impose requirements that would be within FERC's ambit, the U.S. Supreme Court has been clear that the states are preempted from doing that. But are they?

What §401 does is confer broad authority for the states to do through the §401 process that which they cannot do in the face of the Federal Power Act because this is federally delegated authority. So, it is used and I think perceived by the states as a workaround for preemption concerns. Again, the Supreme Court has helped out with that quite a bit. In the 1994 case *PUD No. 1 of Jefferson County v. Washington Department of Ecology*,[14] the Court allowed the imposition of minimum instream flows for fish as a §401 condition because there was a link that was found to water quality standards.

In the *S.D. Warren Co. v. Maine Bd. of Envtl. Protection* case in 2006,[15] the Court went even further than that. It was an interesting case. The issue was whether there is §401 jurisdiction with a dam that is just passing pollutants through and not adding pollutants. The Court in about 1.5 pages said yes. Section 401 says there has to be discharge. Discharges occur through dams and, therefore, there's jurisdiction.

Then, the Court spent another 25 or 30 pages on what I consider to be dicta, expounding on the broad authority that states have in this context to impose whatever requirements they think are appropriate. Included within that list are things like fish passage, things like recreation flows, things that are not directly related to water quality. Again, that is dicta, but sure is a good indication of how the Court thinks about the scope of §401 authority.

In the natural gas context, it's a little different. The Natural Gas Act specifically says that it preempts state siting of gas terminals and pipelines, but reserves to the states authority under the CWA, the Clean Air Act (CAA),[16] and the Coastal Zone Management Act (CZMA).[17] States have attempted with mixed results to weaponize that authority to oppose liquefied natural gas (LNG) projects that they do not want within their borders.

One state attempted to do that in *AES Sparrows Point LNG, LLC v. Smith*.[18] In that case, state law required local land use approvals as a precondition of state approval under the CZMA. Since the local government prohibited the development, state approval was denied. The court found the local law at issue had not gone through the proper CZMA process and so overturned the state decision. A concurring opinion would have stricken the local control element as preempted by federal law on its face. Interestingly, however, the court did uphold the state's denial of the §401 certification.

Now, let's talk about *Hoopa* and the context that the *Hoopa* case arises in. PacifiCorp operates a series of hydroelectric facilities on the Klamath River, which crosses from Oregon into California, where it discharges into the Pacific Ocean.

PacifiCorp applied for a new FERC license. Their 50-year license was expiring and, in the process, they discovered that there were fish passage issues that would need to be addressed. They were quite expensive and the company was thinking that it would be better for them not to relicense these facilities. But the question was how to handle that.

In the course of filing for their new license on these facilities, PacifiCorp filed §401 applications in both Oregon and California, because the projects had discharge in both states. While this was going on, a decades-long water rights adjudication was proceeding to allocate the waters in

11. *Editor's Note:* Rick Glick has advised/represented a number of clients in the CWA §401 process.
12. Millennium Pipeline Co., LLC v. Seggos, 860 F.3d 696 (D.C. Cir. 2017).
13. Port of Seattle v. Pollution Control Hearings Bd., 151 Wash. 2d 568, 90 P.3d 659 (2004).
14. 511 U.S. 700, 24 ELR 20945 (1994).
15. 547 U.S. 370, 36 ELR 20089 (2006).
16. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
17. 16 U.S.C. §§1451-1466, ELR Stat. CZMA §§302-319.
18. 527 F.3d 120, 127 (4th Cir. 2008).

the Klamath River.[19] That included hydroelectric facilities like PacifiCorp.

The Klamath adjudication and the PacifiCorp Klamath project relicensing led to settlement negotiations that went over several years involving the company, state and federal resource agencies, several tribes, conservation groups, and the irrigation community. This was a very difficult negotiation. It took a very long time. The result of it initially was the Klamath Hydroelectric Settlement Agreement,[20] which provided for the removal of those four PacifiCorp dams that PacifiCorp wanted to remove in both states. At the same time, the Klamath Basin Restoration Agreement[21] was adopted, which provided cooperative efforts to protect fisheries and water supplies.

These agreements together were intended to address a wide range of environmental issues associated with water use in the basin. It's a little ironic that this comprehensive settlement is the context in which the *Hoopa* case arises.

The original settlement agreement required congressional approval. For a variety of reasons, that congressional approval failed. So, they went back to the negotiating table and adopted the amended Klamath Hydroelectric Settlement Agreement.[22] In the amended agreement, all that was required was FERC approval, and it left Congress out of the equation. The concept was that they were going to split the license into two pieces. One part of the license was to maintain the facilities PacifiCorp wanted to continue to operate. The other part provided for the removal of four dams.

In the course of doing that, as part of the agreement, PacifiCorp would transfer that part of the license to a new nonprofit corporation that was established with the purpose of removing those dams—the Klamath River Renewal Corporation (KRRC). If that was a successful effort, then the KRRC would surrender that license after removal. Getting to this point and getting the process moving required an awful lot of cooperation between the two states and other stakeholders at the legislative level, at the governors' level, at the agencies' level. It was a big deal.

Special bond issues were offered to provide funding for this work. Special legislation was enacted. Special regulatory approvals in both Oregon and California were required. All of that takes time to work out. Pending these approvals, the agreement provided that PacifiCorp would withdraw and refile its §401 application each year so this process can work itself through. It was contemplated it would take many years to accomplish. So again, a settlement was reached to try to work around that deadline.

But here's where the problem arose. The Hoopa Valley Tribe Reservation straddles the Trinity River near the confluence with the Klamath River and downstream of the PacifiCorp project. The Tribe participated in the settlement discussions, but did not sign. They were one of the few holdouts that did not enter the agreement because they were frustrated with the slow pace of the dam removal. They went to FERC. Their petition said, you know what, this is a fraud, and FERC needs to acknowledge that §401 authority has been waived by the states because this is going way beyond one year. FERC denied that request, and the Tribe appealed to the D.C. Circuit.

Oregon and California declined to intervene in that case, asserting sovereign immunity under the Eleventh Amendment. Oregon took that a step further and said that the states were indispensable parties because it's their certification. Since they're immune from suit, the court lacks jurisdiction and the case should be dismissed. The court wasn't buying that. The D.C. Circuit said that the petition doesn't involve a state certification decision or the application of state law, but rather a federal agency's order, and that is FERC—a matter explicitly within the purview of this court.

The court emphasized that one year means one year. The court rejected the states' argument that the clock resets when the new application is filed. They also rejected the concept that the one-year limit was to protect the applicant, not a third party like the Tribe—it is the applicant who makes a "voluntary" choice to withdraw and refile. The court right off the bat said, well, it's not clear how voluntary that arrangement is. The states ask and applicants must follow. But what's interesting about the case is the language that is used in it. Clearly, the court saw this withdraw-and-refile process as a subterfuge. There is very strong language that shows the court sees this as a subterfuge.

What the court reacted to is that, in this case, there was no pretense of filing a new application with new information. Rather it was a one-page letter that would be filed each calendar year that would withdraw and request renewal. It's the same application, unchanged. This would happen for more than a decade. The court said such an arrangement does not just exploit a statutory loophole. It serves to circumvent a congressionally granted authority over hydroelectric projects.

Section 401 limits the review to one year. The withdraw/refile workaround cedes to the states control over whether and when a federal license will issue. Thus, if allowed, this scheme could be used to indefinitely delay federal licensing procedures, which undermines FERC's jurisdiction. PacifiCorp's withdrawals or resubmissions were not just similar requests. They were not new requests at all. The court was particularly offended by the use of this workaround for the one-year limitation, and said so in very strong language.[23]

The question, though, is to what extent *Hoopa Valley Tribe* should be seen as broadly applicable precedent for future §401 proceedings. Is it a broad-based deconstruction of the workaround of withdrawal and refiling to beat the one-year clock, or is it a narrow decision confined to its facts? There's reason to think that the latter might be the case, in that

19. Oregon.gov, *Klamath River Basin Adjudication*, https://www.oregon.gov/OWRD/programs/WaterRights/Adjudications/KlamathRiverBasinAdj/Pages/default.aspx (last visited Apr. 22, 2020).
20. *See* Klamath River Renewal Corporation, *Settlement Agreements*, http://www.klamathrenewal.org/quick_guide_to_klamath_agreements/ (last visited Apr. 22, 2020).
21. *Id.*
22. *Id.*
23. Hoopa Valley Tribe v. Federal Energy Regulatory Comm'n, 913 F.3d 1099, 1104, 49 ELR 20015 (D.C. Cir. 2019).

> [t]he record does not indicate that PacifiCorp withdrew its request and submitted a wholly new one in its place, and therefore, we decline to resolve the legitimacy of such an arrangement. We likewise need not determine how different a request must be to constitute a "new request" such that it restarts the one-year clock.[24]

We will see in a moment that states have attempted to use that argument before FERC and failed, but the issue is still there as to what *Hoopa* really means in terms of what a new request means and under what circumstances a waiver will occur.

The aftermath of *Hoopa* is interesting. Jim cited a couple of cases that followed *Hoopa*. I'm not going to talk about them right now, but there are some recent FERC precedents that seemed to adopt *Hoopa* full-bore. As I mentioned, FERC has been critical of the withdrawal and resubmittal process but adhered to it to the extent that, when an applicant withdrew and refiled a new application, FERC did not intervene and say that it's prohibited but accepted that a new application created a new one-year period. No more.

In *Placer County Water Agency*,[25] a 2019 FERC decision, there was a withdrawal and resubmittal over a six-year cycle with no changes to the application. FERC said, under *Hoopa*, the state has waived its authority and that's that. Similarly, in *Southern California Edison Co.*,[26] there was a 10-year period of withdrawal and resubmittal with no new information coming in with the new application. FERC found there was a waiver. There was also evidence in the record to suggest that the applicant contributed to the delay in its interactions with the state agencies, but FERC said that under *Hoopa*, such evidence is irrelevant to the statutory deadline. FERC said it's the statutory deadline that counts, one year is one year. And that's what *Hoopa* stands for.

The *Constitution Pipeline Co., LLC* case[27] is an interesting one, as Jim alluded to. This is a 2019 FERC decision. In this instance, there were only two withdrawals and resubmittals, but the application was unchanged. However, during the pendency of the application, extensive new information, thousands of pages of new information, were submitted during the one-year period. The state had argued that this really constituted a new application and FERC said, no, it did not. It did not restart the clock. The resubmittal itself was just two pages and the one-year period runs from the date of the original filing.

What I find interesting about this case is the dissent by Commissioner Richard Glick [no relation], who distinguished the *Hoopa* case in a way that frankly makes sense to me. It may make less sense to my clients who are interested in this kind of issue. What he was saying is that the D.C. Circuit left to a later case how much new information is needed to reset a one-year period. The record of this instance shows that lots of new information came in that the state wasn't able to review in that period and needed additional time to do that.

He also notes that there were a lot of factors that the court was offended by in the *Hoopa* case that partially drove its opinion. For example, the purpose of the amended Klamath Hydroelectric Settlement Agreement was on its face to delay the FERC process, to push this out a little bit to allow the work to continue. It was very clear that there would be no interim changes in the application. The *Hoopa* court suggested that's just on its face invalid.

What Commissioner Glick determines from that is that it makes the *Hoopa* case "hard to apply." He would have remanded this case and developed information to understand whether these factors were driving factors at all. He didn't think that *Hoopa* drove the result in this case or in others that he dissented in as well.

So, there we are. We have the *Hoopa* decision. The question is what do states do with this information? One thing that states are doing is, rather than asking for a withdrawal and resubmittal, they are denying certifications within one year without prejudice. In fairness, these projects are complex. They take time to review. Often, a state can't quite get to where it needs to go. Sometimes, they want more information from the applicant. So, what states are doing now, that I've heard about at least, is they are denying the application and inviting the applicant to refile.

Query whether that is sustainable. Is that not a similar workaround to the withdrawal and resubmittal process? I think one could make that argument, but in the meantime, the Donald Trump Administration has inserted itself in adopting a rulemaking that would by rule try to incorporate into the regulatory process that which the *Hoopa* court tried to do. With that, I'm going to turn it over to Sharon White with the question of whether these new rules resolve the uncertainty that the *Hoopa* case creates.

Sharon White: I am a FERC regulatory lawyer representing hydropower licensees. As you can imagine, all the changes in §401 that have occurred in the past year-and-a-half have had a vast impact on my clients.[28] Rick has provided an excellent overview of the *Hoopa* case, and it sets up my presentation very well.

First, I will cover the response to the *Hoopa* case both in terms of hydropower licensees and what they've been doing in reaction to *Hoopa* at state water quality agencies as well as FERC itself. Then, I will discuss the Administration's attempt to reform §401 through Executive Order and rulemaking.

I will start with hydro licensees' responses to *Hoopa*. First, a historical note. As of March 2019, 17 FERC hydropower licensing decisions were delayed by the failure of state water quality agencies to timely act on a §401 request. Eight of these had been delayed for more than 10 years.[29]

24. *Id.*
25. 167 FERC ¶ 61056 (2019).
26. 170 FERC ¶ 61135 (2020).
27. 169 FERC ¶ 61199 (2019).
28. *Editor's Note:* Sharon White has advised/represented a number of clients in the CWA §401 process.
29. Letter from Malcolm Woolf, President and CEO, National Hydropower Association, to Andrew Wheeler, Administrator, U.S. EPA, re: National Hydropower Association Comments on EPA's Proposal for Updating Regulations on Water Quality Certification 8 (Oct. 21, 2019), https://www.regulations.

Section 401 certification has been a major source of delay in hydropower licensing. For that reason, *Hoopa* was a major game changer in this industry.

Licensees started using the *Hoopa* decision almost immediately to resolve these long-standing delays. This was done primarily through requests to FERC for a finding of waiver of state water quality authority under §401. Licensees did this either through petitions for declaratory order or by a letter request to FERC asking for a waiver decision. They started doing this within four weeks of the *Hoopa* decision. It was very quick. FERC responded quickly with its first declaratory order within three months of the *Hoopa* decision finding a strict reading of one year means one year. As Rick mentioned, that's the *Placer County Water Agency* case.

Licensees have also pursued some state court challenges of the §401 certifications. There are several ongoing administrative and state court appeals of §401 certifications in the states, primarily California and Maine. These appeals are two-pronged. They request the state waive because a year had passed, but also that the §401 conditions themselves are beyond the scope of §401 using the EPA rulemaking that is pending right now. In some cases, the hydropower licensees pursue both of these paths, a waiver request in front of FERC and a state court challenge of the §401 certifications.

Licensees are also considering what constitutes a new application to restart the one-year clock. As Rick mentioned, *Hoopa* left us wide open on what qualifies as a new application to restart the clock. But licensees do have the option to revise their applications and include a new proposal in order to restart the clock and submit it to §401 agencies. Some licensees are considering that.

Licensees are also in some cases engaging earlier with states. Some states previously had been reluctant to participate in the FERC relicensing study process. They would indicate that they would request additional studies and information through the §401 process, which occurs much later in the licensing process, as opposed to the FERC study dispute process. *Hoopa* really changes that. States may be more willing to engage earlier.

Licensees are also considering whether to submit new §401 applications after one year has passed if the state either fails to act or denies a §401 without prejudice. Under FERC's regulations, a licensee must have a §401 application on file with the state in order for its FERC application to be in good standing. But what to do if the state denies a §401 without prejudice? This often creates a dilemma for the licensee. A lot of times, this drives them to seek a waiver request with FERC to get some guidance on what to do. But FERC has been pretty flexible with this requirement and has not always required a §401 application to be on file given the uncertainty of §401 right now.

Licensees are also considering when to submit a §401 application. Under FERC's regulations, they are required to do that within 60 days after FERC has determined that the license application is complete and ready for environmental analysis. But FERC's regulations do allow some flexibility for waiver of this requirement, so a licensee could submit a §401 application a bit further down the line (e.g., after FERC has issued the National Environmental Policy Act (NEPA)[30] document if all parties think that that would be better).

Finally, licensees are considering when the appropriate time is to seek waiver, whether it is sufficient after one year or whether you have to wait multiple years to build the record and make a better case in front of FERC. But FERC has now indicated that the number of years that have passed is really not relevant. So, we are going to see more licensees taking action sooner and not waiting for 10 years of withdraw and resubmit before asking FERC to intervene.

The states have actively been engaged in response to *Hoopa*, primarily by challenging waiver requests in front of FERC. This is mostly in California because most of the waiver requests are license proceedings there. The State Water Resources Control Board has asserted multiple grounds for opposition to FERC findings of waiver. It argues that there has been no formal agreement to delay issuance of §401 certification. It basically encourages a strict reading of *Hoopa*—that unless there is a formal agreement to delay, then *Hoopa* does not apply.

It argues that the licensee is voluntarily withdrawing and resubmitting its §401 application to avoid denial without prejudice, and that there is no indefinite delay if the state eventually issues the §401 certification, even if that is years later. It also argues that the state needs the FERC NEPA document to conduct its state review, and that it cannot issue its §401 until it has completed the California Environmental Quality Act process. Finally, it argues that there are insufficient resources to act within a year because the state has been responding to droughts, or there is a lack of resources and that *Hoopa* should not be applied retroactively but only prospectively.

All those arguments have failed thus far in front of FERC. The state of California has not pursued any challenges of FERC's waiver requests yet in the court of appeals in the hydropower context, but may do so if it chooses to appeal any of these new licenses that come out and incorporate a waiver decision. That could go up to the U.S. Court of Appeals for the Ninth Circuit. If the Ninth Circuit makes a decision contrary to *Hoopa*, it sets up a circuit split that could eventually get to the Supreme Court. So that is definitely something to watch.

The states, California in particular, are also granting §401 certifications without a pending application before them. In this case, they have denied a §401 application without prejudice, but then continued to process the application even though the applicant did not resubmit an application, and eventually issued a §401 certification. That is being challenged at FERC as well.

As Rick mentioned, especially in California but in other states as well, states are proceeding with denials without

gov/contentStreamer?documentId=EPA-HQ-OW-2019-0405-0807&attachmentNumber=1&contentType=pdf.

30. 42 U.S.C. §§4321-4370h, ELR Stat. NEPA §§2-209.

prejudice, instead of directing withdrawals and resubmittals of §401 applications. Query whether that is the functional equivalent of a withdraw and resubmit. I would argue that it is the same exact thing. I think it is potentially the next big case in the Court of Appeals, on whether this practice is legitimate or violates *Hoopa*.

Another note is that states must explain their denial of a §401 application under the *National Fuel Gas Supply* case in the Second Circuit.[31] States, under the arbitrary and capricious standard, must explain and provide a rational connection between the facts found and the choices made. So, those denials without prejudice are still subject to a waiver determination if the state does not make this explanation for a denial. If, for example, the state just denies because it is out of time, that should not be sufficient.

Finally, at least in some states, we have seen states moving faster and wanting to get their certifications out in one year. And really that is what everybody wants. So, that's a great result out of *Hoopa*. Some states are going in that direction and pushing out these §401s within a year.

Moving to FERC's response to *Hoopa*, FERC has issued several declaratory orders finding waiver of §401.[32] It has found a strict application of *Hoopa* that one year is one year. *Hoopa* is not limited to its facts and does not just apply to a case where there is a formal agreement to delay issuance of a water quality certification. FERC issued its first declaratory order rather fast, but then slowed down and had multiple declaratory orders pending before it. But we have seen a recent uptick in FERC's response to pending waiver requests. It is pushing them out quickly now. In fact, we are expecting another one this week.[33]

As I mentioned, FERC is not strictly enforcing its requirement to have a §401 application pending during the licensing. It is also reviewing the timing of the §401 process independently, without a waiver request before it. This might be a trend that we start seeing in all license applications, that FERC will be examining on its own.

Finally, FERC has indicated that it will treat §401 conditions included in invalid §401 certifications as recommendations, if time allows. It will have discretion whether to include them or not. As I mentioned, FERC has not definitively ruled on the state's practice of denying without prejudice in the hydro context. It has indicated that this might be an option in dicta in a gas case,[34] but has not applied this in the hydro context. That is something to watch for.

Rick provided a preview of these cases, so I am not going to do a deep dive into them. But the *Placer County Water Agency* case was the first declaratory order finding waiver under §401. FERC held that a formal agreement was not required, and that exchanges between the entities amounted to an ongoing agreement to restart the clock. Essentially, the licensee entered e-mails and other documentation from the state water quality agency into the record, directing it to withdraw and resubmit or risk getting a denial. FERC found that there was evidence to show that a waiver had occurred on that basis.

I will note that the *Placer County Water Agency* declaratory order has now gone final. The state did not appeal it to the Ninth Circuit, but the state certainly could appeal the waiver determination when FERC issues the new license. That could go up to the Ninth Circuit.

In the *McMahan Hydroelectric* case,[35] FERC ruled for the first time proactively that a state's §401 authority was waived without a waiver request in front of it. This was an original license for a small project in North Carolina in which the applicant filed a §401 application in 2017. The state requested additional information as well as FERC's NEPA document and basically said that the §401 application is on hold until it receives the information. The applicant provided some of the additional information, but FERC did not complete its NEPA review within one year. So the applicant was directed to withdraw and resubmit its application, which the applicant did two years in a row. But then FERC issued the license. It did its own examination of the §401 time line and found that a waiver had occurred. The withdrawal and resubmittal did not restart the clock. FERC also noted that the submittal of additional information requested by the state does not toll the one-year period at all.

From the FERC perspective on the *Constitution Pipeline* case, FERC found that, due to the waiver, the water quality agency's later denial of the §401 application had no legal significance, and also that no formal agreement was needed to violate the one-year deadline. Also, the fact that the delay was for a shorter period than *Hoopa* does not matter. The state also argued that, without a §401 certification in place, the construction of the pipeline would result in significant environmental harm. FERC denied that argument, finding that it did not depend on the forthcoming §401 certification to justify its conclusion that project-related impacts would be acceptable and the project should be authorized. FERC did its own independent review of that and was comfortable moving forward.

Empire Pipeline,[36] which is now a pending case in the Second Circuit, is a gas pipeline case with some interesting facts. The applicant and the state agreed to revise the date by which the state received the §401 application to extend it for a few weeks to allow the state to issue its §401 determination. But ultimately, the state denied the §401 application and the applicant went to FERC for a waiver.

FERC found that the applicant and the state agency cannot extend the statutory deadline by an agreement to

31. National Fuel Gas Supply Corp. v. New York State Dep't of Envtl. Conservation, No. 17-1164, 2019 WL 446990, 49 ELR 20017 (2d Cir. Feb. 5, 2019).
32. Placer County Water Agency, 169 FERC ¶ 61046, para. 18 (2019); McMahan Hydroelectric, LLC, 168 FERC ¶ 61185 (2019), *denying reh'g and stay*, 171 FERC ¶ 61046 (2020); Southern Cal. Edison Co., 170 FERC ¶ 61135 (2020); Constitution Pipeline Co., 169 FERC ¶ 61199, para. 20 (2019).
33. Pacific Gas & Elec. Co., 170 FERC ¶ 61232, para. 27 (2020).
34. National Fuel Gas Supply Corp., 167 FERC ¶ 61007, para. 17, n.40 (2019).
35. McMahan Hydroelectric, LLC, 168 FERC ¶ 61185 (2019), *denying reh'g and stay*, 171 FERC ¶ 61046 (2020).
36. National Fuel Gas Supply Corp. and Empire Pipeline, Inc., 164 FERC ¶ 61084 (2018), *denying reh'g*, 167 FERC ¶ 61007 (2019). [Editor's Note: Sharon White submitted an amicus brief in support of FERC in this case as this issue was going to press.]

modify the date of receipt of the §401 application. FERC suggested, in dicta, that if the state needs more time, in the case of an incomplete application, it could deny the application with or without prejudice. This language is a little bit concerning, even though it is in a gas context and FERC has not opined on that in the hydro context yet. The case is currently pending, so it is a case to follow. It is also a good case to consider whether there should be a mechanism to allow a short extension of time beyond the one year if the state and the applicant are on the verge of some kind of settlement. EPA's notice of proposed rulemaking (NOPR) tees this issue up for discussion.

We are also expecting an order this week on Pacific Gas and Electric Company's (PG&E's) Kilarc-Cow Creek license surrender proceeding.[37] Here, PG&E filed its §401 application in August 2009 and withdrew every year for 10 years. FERC completed its NEPA review and the National Marine Fisheries Service issued its biological opinion back in 2011. Basically, the §401 application was the sole holdup on the surrender proceeding for many, many years. The Water Board denied the §401 application in April 2019 and encouraged PG&E to submit a new request. PG&E did not do that because it was post-*Hoopa*, but the Water Board nonetheless issued the §401 certification at the end of 2019. So now, PG&E has sought a waiver determination and has also asked FERC to reject all of the Water Board's §401 conditions. We are expecting that order this week, and it could be a good one.

Let's move on to the Administration's attempt to reform §401, starting with President Trump's Executive Order No. 13868 issued in April 2019.[38] The intention of the Executive Order was to provide for efficient permitting of energy infrastructure projects and reduce regulatory uncertainties. It was really targeted at coal, oil, and natural gas infrastructure projects, but it also included provisions on §401. It noted the confusion and uncertainty of that process and the need for reform.

The Executive Order directed EPA to issue new guidance and initiate a rulemaking to revise its §401 regulations, if appropriate. Subsequent to that, it requires §401 implementing agencies such as FERC to review their regulations and make them consistent with EPA's new rule. President Trump's Executive Order was really the driver behind EPA's rulemaking that came out in August.

I will note that before the NOPR was issued, EPA did revise its EPA guidance in June 2019, issuing a revised interim guidance document that supersedes prior guidance issued by the Barack Obama Administration in 2010. It provided a preview for the Administration's position in the rulemaking, including procedural and subsequent reforms to §401. It also teed up that EPA would be looking not just at the timing of §401, but also the scope of §401 and limiting that to water quality impacts from a project. That was another big game changer and was unexpected.

That leads to the proposed rule issued in August 2019. EPA's NOPR proposes sweeping changes to the timing and scope of §401. As Jim mentioned, it is the first major overhaul of EPA's §401 regulations since they were originally promulgated in 1971. More than a thousand comments were received on the NOPR. It is a controversial one, and I'm sure EPA has its hands full in producing a final rule, which is expected in May.

I will cover some of the major proposals in the NOPR. First, regarding scope, EPA proposes to limit a state's review and action under §401 to considerations of water quality. Under this proposal, conditions requiring recreation facilities and access improvements, payments to state agencies for improvements, and conditions to address alleged impacts from a project, such as air emissions and transportation effects, and even arguably conditions related to fish passage, could be off the table by limiting the scope of §401 in this way.

EPA has rejected the majority decision in the *PUD No. 1* case that Rick covered, which had previously been read to broaden the scope of §401. EPA has taken the position of the dissent in that case that §401 does not apply to a project in its entirety, but only to the discharge as a result of the project. EPA accordingly has limited the conditioning authority to water quality impacts from the point source discharge rather than the entire activity associated with the federally licensed project. So, any limitation or condition offered by a water quality agency that is unrelated to water quality would not be a condition considered required by the federal agency and could be rejected.

The NOPR also provides time limits for state action, specifically that one year is one year. It incorporates the *Hoopa* holding and finds that there is no tolling provision to stop the clock at any time in §401. If a state agency does not act on the §401 application, certification is waived. It specifies that the time line begins upon receipt of the application, not when the state deems it to be complete. It specifies that the state may not ask the project proponent to withdraw a §401 request or take any other action to modify or restart the clock. If the state seeks additional information from the applicant or needs more time, it does not excuse a state's failure to act within one year.

But EPA did tee up the issue of whether there is any legal basis or whether a federal agency could extend the one-year period where an applicant and a state water quality agency are working collaboratively and in good faith and it could be in their mutual interest to extend the period beyond one year. EPA has received comments on this, and we may see something on that in the final rule.

To limit overly broad §401 conditions, EPA proposed a definition of "condition" that includes only specific requirements included in a certification that are within the scope of certification. Under this definition, conditions must be necessary to assure compliance with water quality requirements. For each condition, the state must explain why the condition is necessary. To assure that the discharge will comply with state water quality requirements, the state must cite a law that authorizes the condition, and provide a statement of whether and to what extent a less stringent

37. FERC issued its order several days after the webinar was held. *See* Pacific Gas & Elec. Co., 170 FERC ¶ 61232, para. 27 (2020).
38. Exec. Order No. 13868, 84 Fed. Reg. 15495 (Apr. 15, 2019).

condition could satisfy the applicable water quality requirement. It is up to the federal agency to review whether the conditions are within the scope of §401 and whether the state has provided this necessary information. If it has, then the condition would be included in the federal license. If it has not, it may not be included in the federal license.

Federal agencies would also provide an opportunity for the state to remedy a condition that exceeds or conflicts with the scope of §401 authority if there is still time within that one-year period. Deficient conditions could be removed from a §401 certification on a piecemeal basis; it would not invalidate an entire §401 certification. But a federal agency would have the authority to reject certain conditions if they exceeded the scope of §401.

Finally, with regard to enforcement of §401 conditions, the current regulation states that §401 conditions become a requirement of the license, but it does not discuss a federal agency's responsibility to enforce the conditions. Under the NOPR, EPA proposes that the federal agency is responsible for enforcing the §401 conditions once they are incorporated into the license. So once the state issues a certification, §401 does not provide an additional or ongoing role for a state to enforce the conditions under federal law, and there is no independent state enforcement authority for conditions included in the federal license. That contradicts what several states have argued for many years and could be a controversial aspect of this final rule.

Also, EPA has sought comment on the use of re-openers. Re-openers are very common §401 conditions, allowing the state to re-open the certification during the term of the license for a multitude of reasons. EPA has sought comment on whether that should be explicitly prohibited or whether it is inferred by its other proposals. We might see something on that in the final rule.

As for next steps, we are expecting the final rule in May 2020. I think it is safe to say that there would be a number of legal challenges to EPA's final rule in the district court. Just as the Endangered Species Act (ESA)[39] final rules that came out last year were almost immediately challenged and are pending right now, I think it is likely that the new rules will be challenged and there will be a request for stay of the rule pending judicial review. We will see how that plays out. Also a possible change in the administration could affect the future of these §401 proposals.

James McElfish: We've received a number of questions. Could either of you explain more about an invalid §401 certification currently? If an applicant believes a certification or a condition is invalid, what recourse do they have under current law, and then what recourse might they have under the proposed rule?

Sharon White: An invalid certification would be one that was issued, for example, while a pending §401 application is not on file with the state. In this case, the state denies the application without prejudice, even though there is no pending §401 application. In theory, the waiver has already occurred, but the state nonetheless issues the §401 certification anyway.

The recourse for a licensee I believe is to go to FERC, ask for a waiver and a finding that the §401 certification is invalid. If FERC agrees, it will invalidate the §401 certification. It is left to FERC's discretion whether to incorporate some or all of the §401 conditions from the invalid certification into a FERC license. Again, FERC has indicated that it is going to treat them as recommendations, as opposed to mandatory conditions, if the §401 certification is invalidated, but FERC has not yet issued a license in this situation and acted on this. So we do not know what this is going to look like, and whether FERC is still going to defer to the state agencies and take these §401 conditions, or is actually going to reject some of them and use their discretion to do that.

Rick Glick: It's useful to keep in mind a couple of existing law provisions that have some relevance here. I think one is that, under the *American Rivers v. Federal Energy Regulatory Comm'n* case,[40] FERC was denied the ability to pick and choose among state conditions that it felt were appropriate. That used to be its practice. After *American Rivers*, the practice at FERC has been that whatever the state comes up with in its certification gets stapled on to the FERC license as license articles. That's part of the context here too.

Another thing is that there's lots of case law that says that the extent of or the validity of the state certification or conditions within that certification is a matter of state law, with the exception of procedural irregularities or perhaps the concept that the states exceeded their authority. I think there is a body of existing law that's going to have to be overlaid on these new cases and new interpretations as we're going forward.

James McElfish: I suppose, if the proposed rule is adopted, that FERC or any other licensing agency would be able to decide for itself whether a condition is inside or outside the scope. Is that right?

Sharon White: That's correct; there will be a FERC determination. FERC will make the determination whether it is within the scope of §401, that the state has provided an explanation for each §401 condition, and that some alternative and less burdensome condition would not fulfill and address the project impact.

James McElfish: Another question is what are states doing as a practical matter to expedite the process apart from these "denials without prejudice" and other maneuvers or machinations? Are there things that states are doing to actually get through this process within six months, or nine months, or a year?

Rick Glick: I'm not aware of specific state activities to try to expedite that process. When one considers what a FERC

39. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.

40. 129 F.3d 99, 28 ELR 20258 (2d Cir. 1997).

license application looks like—which is multivolume, hundreds or thousands of pages of review—and then the water quality certification application is not too far behind in terms of scope, what will have to happen is that states will have to make abbreviated reviews. In my own state, I know for a fact that state agencies lack the people power to process in-depth a serious application that might come in. So it's going to prompt them, I think, to act quickly and to perhaps lead to conclusions that may not be supportable going forward.

I think a little bit perversely it may lead state agencies to impose conditions that are more onerous than might be necessary, because they're going to default to being conservative as they're reviewing these things and sending them on to FERC. Knowing that in the FERC process the state's ability to impose conditions is quite limited and that FERC will have ultimate jurisdiction, it would not be a big surprise if you see states acting in a more aggressive way. If they have any evidence on the record to support a condition that might be more onerous than they would otherwise impose, that might happen.

Sharon White: We have seen states do three things to expedite the process thus far. They have started to get involved in the FERC licensing process a little bit earlier. Again, the study process in the FERC licensing occurs years before a §401 application goes in. But if the state has study needs that it needs addressed in order to issue a §401 certification, I think they are going to be a lot more inclined to get involved much earlier and resolve those disputes through the FERC study dispute process because that might be the only opportunity they get. I do not think they will be able to request additional studies as part of the §401 process and get those within one year.

The states are also engaging in increased consultation with stakeholders earlier and more frequently during the course of the one-year process. And, as discussed, they are increasing staffing for their state water quality agencies to really beef it up and get it going faster.

James McElfish: A question about state administrative appeals: how do state administrative appeals affect the application of *Hoopa Valley*, if at all?

Rick Glick: They don't. As mentioned in my presentation, there was a case coming out of the U.S. District Court in Washington in recent years in which that very issue was before the court.[41] Under the Washington procedures, there was an administrative appeal to the Pollution Control Hearings Board. That process was completed after the one-year period and the Washington Department of Ecology said, well, there has to be a tolling of the one-year period to account for state appellate processes. The court said, no, there does not. There is no tolling. You're just going to have to account for the fact that the §401 application is complete as it was originally done. If there are other state policies you want to impose, you have to do it through your own state regulatory process, but not through §401 because that process is over.

James McElfish: In that instance, would the original certification or denial be the certification? What are the implications of that?

Rick Glick: There is an original certification unmodified by the Pollution Control Hearings Board's ruling.

Sharon White: From a FERC perspective, if there is an appeal and the §401 conditions change on appeal outside the one-year period, it is within FERC's discretion to incorporate those new §401 conditions. They are not mandatory. FERC does typically incorporate them into the license, but they do have discretion not to do so.

James McElfish: There is a question about completeness. States have raised issues about the completeness of the §401 certification request they have received. What is the state to do?

Rick Glick: Courts have held that once the request for certification is made, the state's "subjective" determination of what is a complete application is irrelevant. The one-year period starts with that request, and the state can try to get clarification. But the one-year period will stand and there won't be any adjustments for determination and completeness.

Sharon White: I'll note that EPA's rulemaking has thrown out a suggestion on defining what constitutes an application, and is very specific about what an applicant needs to include. But in general, an applicant includes the entire FERC license application, which is hundreds of pages of information that FERC is working from to do their NEPA document. Arguably, if all of that information is in front of the §401 agency, that should be sufficient. The §401 agency does have the ability to request additional information but again, as I mentioned, that cannot toll the one-year period. So, if the state does not get it, they can't hold up the certification for that.

James McElfish: Since in FERC's August 2019 order on the Constitution Pipeline project, FERC concluded in the standard for waiver that if "an applicant withdraws and resubmits their request for water quality certification for the purpose of avoiding section 401's one-year time limit,"[42] how much significance do you place on the purpose element of the standard? Also, how do you think the settlement relates to the existence of signing of an agreement, formal or informal, between the applicant and the state? In other words, is there a limitation on *Hoopa Valley* related to the intent of the withdrawal, resubmit, and the existence or nonexistence of an agreement?

41. Airport Cmtys. Coal. v. Graves, 280 F. Supp. 2d 1207 (W.D. Wash. 2003).

42. Constitution Pipeline Co., LLC, 169 FERC ¶ 61199, para. 27 (Dec. 12, 2019), *quoting* 168 FERC ¶ 61129, para. 31 (Aug. 28, 2019).

Rick Glick: I don't think so.

Sharon White: I would argue that FERC has made it clear in interpreting *Hoopa* that a formal agreement is not necessary, and that an applicant's withdrawal and resubmittal of the §401 application is typically at the direction of the state. Applicants are doing it because they are getting an e-mail or a communication from the state directing it to withdraw and resubmit, because it needs more time. That does not toll the one-year period.

James McElfish: Among the cases that you see making their way through FERC or in the states, do you have any candidates that you think are most likely to get to the Supreme Court or create a conflict in the circuits?

Sharon White: I think the Placer County Water Agency license order could be the next one we would see, because FERC has already issued its waiver determination. As far as I know, there is nothing else holding up that relicensing proceeding. I think a license order is imminent. If the state or another party opts to bring that to the Ninth Circuit, if the court finds something contrary to *Hoopa*, it could tee it up to the Supreme Court. So, that case is a likely candidate.

Rick Glick: I'm not that familiar with the underlying facts of the *Placer County* case, but it does seem from a state point of view that might not be the best case to take up on appeal because it also involved multiple years of withdrawal and resubmittal. The *Constitution Pipeline* case was just one year of doing that with lots of new information coming in, but I don't really have a crystal ball on that.

James McElfish: Although I guess the Constitution Pipeline project might be tricky if they're no longer pursuing the pipeline. That brings us to the conclusion of our questions. Would our panelists like to leave us with any final thoughts for the day?

Rick Glick: I have a comment and a question for Sharon actually. I'm very interested in her views on this. I don't think anybody—state agencies, applicants, other stakeholders, or FERC— would question that this is a broken process, that the §401 process is not working the way it is intended to. It's very expensive. It's very time-consuming. It's very litigious. Were we living in a rational word, we would bring this to Congress and say we need clarification on this. But we don't live in that world. It's not going to happen.

My question is whether this is fixable in a rulemaking context. The way §401 has been set up, it's a delegation of federal authority under the CWA to the states for implementation. It does not provide a role for EPA other than if a neighboring state is concerned about its effects on its own water quality standards, then EPA can help the states work it out. But EPA is pretty much an outsider on this. So, if it adopts rules that purport to direct how states implement §401, is that sustainable? That is, would states be bound? If they do adopt such rules, is their interpretation of the CWA entitled to *Chevron* deference for a program they don't administer? I think it's an open question, whether the Court would do that here.

I'm curious how Sharon might view whether §401 implementation can be directed by EPA. And I'll add to that, too, that the prior guidance that was in place, the prior rules that were in place, were simply a compilation of the existing case law at the time. It was sort of a guidance to the states on things they should be considering. It did not and was not intended to direct states on how to implement their own processes. I think that's what the new rules are intended to try to do. Sharon, what do you think?

Sharon White: I don't think this is an issue that will be fixed quickly. I think that there is some flexibility depending on where EPA lands with the final rule. That might provide some provisions to get the applicants and the states to start talking and trying to fix these issues. For example, if EPA provides some flexibility to the federal agency to extend the deadline if the states and the applicants are close and the one year is approaching. Because, at least what I've seen with my clients, they are good stewards. They want to work with their state water quality agency, keep a good relationship, and try to get there. If it is close, I don't think that they would oppose having a little more time to get there. But whether the states will comply with these new rules and whether FERC will intervene is yet to come. I don't know.

James McElfish: I will add that EPA is leaning very heavily on *Chevron* in the proposed rule, including the flavor of *Chevron* that's exemplified by the Supreme Court's *National Cable & Telecomms. Ass'n v. Brand X Internet Servs.* Decision,[43] wherein an agency says it can overrule an interpretation by a court. In this case, EPA has indicated that it disagrees with the Supreme Court majority in the *PUD No. 1* case. One of the interesting sidelights is that the dissent in *PUD No. 1* is Justice Clarence Thomas, whose views EPA now is proposing to embrace. Justice Thomas, in a recent cert denial, indicated that he no longer believes in *Brand X* deference.[44] So, we'll have some interesting deference issues perhaps when the §401 rule is finalized.

43. 545 U.S. 967 (2005).
44. Baldwin v. United States, 589 U.S. ___ (2020) (Thomas, J., dissenting).

COMMENTS

EPA'S CRIMINAL PROSECUTION AND PUNISHMENT OF ENVIRONMENTAL CRIMES

by Joshua Ozymy and Melissa L. Jarrell

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The U.S. Environmental Protection Agency (EPA) has the difficult mission of crafting complex environmental rules and regulations while considering the economic costs of those actions. The Agency must also engage in law enforcement functions to enforce these rules and regulations to ensure compliance, punish appropriately, and deter future offenders. Most of these enforcement actions rely on civil remedies to gain compliance, such as negotiating consent decrees or issuing civil penalties.[1] In cases of willful, chronic, or serious offenses, the Agency can seek criminal penalties.[2]

High-profile cases, such as the British Petroleum (BP) Texas City refinery explosion where company negligence claimed 16 lives and injured 180 individuals, or the *Deepwater Horizon* disaster, are primary examples of when the Agency sought criminal sanctions. Other examples include the $2.8 billion criminal fine levied against Volkswagen AG for their multi-year emissions-rigging fraud. In practice, these prosecutions can include the illegal taking of protected animals under the Migratory Bird Act, illegal discharge under the Clean Water Act (CWA),[3] federal biofuel credit fraud, or improper disposal of toxic substances under the Resource Conservation and Recovery Act (RCRA).[4]

Little academic and legal research goes beyond explaining civil punishments to describing criminal punishment outcomes by EPA, particularly across regional offices.[5] We undertake content analysis of the EPA Summary of Criminal Prosecutions database of all cases in which EPA sought criminal sanctions against environmental offenders from 1983 to 2019.[6] As the Agency's enforcement efforts are distributed across 10 regional offices, our goal is to explore the universe of criminal prosecution within and across these units to include the number of cases, defendants, types of environmental charging statutes used, non-environmental criminal charges filed against defendants, and the range of punishments.

This research will provide great insight into the Agency's criminal enforcement efforts over the past 37 years, and create a basis for understanding what the Agency does to punish offenders with its criminal enforcement apparatus. We describe the criminal enforcement process below before turning to the analysis.

I. The Criminal Enforcement Process

Most environmental enforcement actions rely on civil remedies.[7] EPA can seek civil remedies to gain compliance with the law, including administrative or judicial actions that result in civil penalties, settlements, administrative orders on consent, injunctive relief, environmental mitigation plans, or supplemental environmental projects.[8] EPA

1. Ronald H. Rosenberg, *Doing More or Doing Less for the Environment: Shedding Light on EPA's "Stealth" Method of Environmental Enforcement*, 35 B.C. Envtl. Aff. L. Rev. 175 (2008); David M. Uhlmann, *Environmental Crime Comes of Age: The Evolution of Criminal Enforcement in the Environmental Regulatory Scheme*, 4 Utah L. Rev. 1223 (2009).
2. Michael J. Lynch, *The Sentencing/Punishment of Federal Environmental/Green Criminal Offenders, 2000-2013*, 9 Deviant Behav. 991 (2017).
3. 33 U.S.C. §§1251-1387, ELR Stat. FWPCA §§101-607.
4. 42 U.S.C. §§6901-6992k, ELR Stat. RCRA §§1001-11011; Joshua Ozymy & Melissa L. Jarrell, *Wielding the Green Stick: An Examination of Criminal Enforcement at the EPA Under the Bush and Obama Administrations*, 24 Envtl. Pol. 38 (2015); Environmental Prot. Agency v. BP Prods. N. Am., No. 4:07-CR-434 (S.D. Tex. 2009); Environmental Prot. Agency v. Volkswagen AG, No. 16-CR-20394 (E.D. Mich. 2017); Environmental Prot. Agency v. BP, PLC, No. 2:12-CR-00292-DEK (E.D. La. 2013).
5. Kathleen F. Brickey, *Charging Practices in Hazardous Waste Crime Prosecutions*, 62 Ohio St. L.J. 1077 (2001); Michael J. Lynch et al., *The Weak Probability of Punishment for Environmental Offenses and Deterrence of Environmental Offenders: A Discussion Based on USEPA Criminal Cases, 1983-2013*, 37 Deviant Behav. 1095 (2016); Jay P. Shimshack & Michael B. Ward, *Regulator Reputation, Enforcement, and Environmental Compliance*, 50 J. Envtl. Econ. & Mgmt. 519 (2005); Jay P. Shimshack & Michael B. Ward, *Enforcement and Over-Compliance*, 55 J. Envtl. Econ. & Mgmt. 90 (2008).
6. U.S. EPA, *Summary of Criminal Prosecutions*, https://cfpub.epa.gov/compliance/criminal_prosecution/index.cfm (last updated Apr. 1, 2020).
7. Uhlmann, *supra* note 1.
8. U.S. EPA, *Basic Information on Enforcement*, https://www.epa.gov/enforcement/basic-information-enforcement (last updated Jan. 24, 2020).

really has two options—it may seek sanctions in federal court or pursue the matter administratively.[9]

The Agency sought the ability to use criminal sanctions as it became evident that civil remedies were not sufficient to deter serious crime and punish wrongdoing. In 1981, EPA's Office of Environmental Enforcement (currently the Office of Enforcement and Compliance Assurance (OECA)) was founded to empower the Agency to enforce environmental regulations. The U.S. Department of Justice's (DOJ's) Environmental Crimes Section (ECS) was created the following year to assist with investigations and the prosecution of environmental criminals; the federal government only prosecuted 25 environmental crimes prior to the creation of these offices.[10]

Federal statutes benefit the Agency's ability to pursue criminal charges, as most environmental criminal statutes do not require the government to prove that the defendant wrongfully intended to discharge a pollutant, but simply require evidence that the individual or entity knew that it was engaging in action likely to lead to release of a pollutant.[11] However, while EPA has the authority to investigate environmental crimes, it cannot prosecute directly. It must rely on the U.S. attorneys or ECS if they wish to file criminal charges and prosecute. This makes criminal enforcement a costly enterprise that must often rely on cooperation with state and local environmental agencies, as well as other federal law enforcement agencies.[12]

The Agency faces strong incentives to avoid taking a case to trial. Cooperation and collaboration among prosecutors, law enforcement officials, regulators, laboratories, and legislators are essential because of the growing sophistication of environmental criminals and their defense attorneys. Although there are still numerous cases of "midnight dumping," increasing numbers of businesses systematically and knowingly are violating environmental laws to save money and increase profit margins.[13]

EPA is focused on deterrence, playing the role of a "violation-minimizing policeman" to reduce the chance of future environmental harm; they would need to punish companies stiffly enough to deter future actions and to punish more severely those that commit serious environmental crimes that harm others and the natural environment.[14] Given the costs of criminal prosecution, research suggests this is reserved to gain compliance with and deter willful offenders, as well as punish serious crimes; while others question the value of the criminal enforcement apparatus to deter environmental crimes.[15] We explore these issues below by examining the available history of the Agency's criminal enforcement prosecutions.

II. Data and Method

Data are collected from the EPA Summary of Criminal Prosecutions database. The OECA provides narrative case summaries for all criminal prosecutions by EPA fiscal year starting with 1983. We coded data from the very first case through the end of calendar year 2019. We collected the following data from each case narrative: case summary, year, defendant docket number, number of defendants, state, region, major environmental charging statutes, non-environmental criminal charges (i.e., false statements, mail fraud, obstruction, etc.), and punishments including probation, incarceration, and fines.

Coding the case narratives was somewhat difficult due to the styles of the various EPA employees who entered the data over so many years. Some cases contained concise narratives and others press releases, while others contained both. We developed our coding protocols by analyzing a series of cases through fiscal year 2005. Once we could see the patterns in the data and how they were coded, we were able to establish a permanent coding protocol. We then piloted this protocol with two coders for four weeks, completing a trial run of a series of cases each week until inter-coder reliability reached above 90%. Two coders then reviewed each case independently with the lead author of this Comment, reviewing for cases of disagreement that were then discussed among the authors until consensus was reached. Typical problems in coding came from complex punishments in cases involving multiple defendants and when there were discrepancies in the case summaries (i.e., in some cases where press releases and manually entered summaries existed, there were conflicting data points or in a few cases no sentence was handed down or recorded as such in the database).

By dividing the agreed-upon items by total items coded,[16] the level of agreement for the 2,588 cases in the data set was approximately 95%. In 17 cases, no state, region, or geographic identifier could be found by any means, and those are excluded in the analysis accordingly, which results in 2,571 valid cases in the analysis. This total does not include the criminal settlement against BP for its role in the *Deepwater Horizon* case. In an odd quirk, it could not be found by searching the database and only by

9. Jeremy Firestone, *Agency Governance and Enforcement: The Influence of Mission on Environmental Decisionmaking*, 21 J. Pol'y Analysis & Mgmt. 409, 410 (2002).
10. Celia B. Campbell-Mohn, Sustainable Environmental Law (West Publishing Co. 1993); Earl E. Devaney, The Evolution of Environmental Crimes Enforcement at the United States Environmental Protection Agency (1994), *available at* https://www.inece.org/assets/Publications/57a8be53a90ea_SpecialTopicTheEvolutionOfEnvironmentalCrimes_Full.pdf.
11. John F. Cooney, *Multi-Jurisdictional and Successive Prosecution of Environmental Crimes: The Case for a Consistent Approach*, 96 J. Crim. L. & Criminology 435, 436 (2006).
12. DOJ, Justice Manual 9-27.220B (1997).
13. Evan J. Ringquist & Craig E. Emmert, *Judicial Policymaking in Published and Unpublished Decisions: The Case of Environmental Civil Litigation*, 52 Pol. Res. Q. 12 (1999); Theodore M. Hammett & Joel Epstein, U.S. Department of Justice, Local Prosecution of Environmental Crime xvi (1993).
14. Devon Garvie & Andrew Keeler, *Incomplete Enforcement With Endogenous Regulatory Choice*, 55 J. Pub. Econ. 141 (1994).
15. Kimberly L. Barrett et al., *Monetary Penalties and Noncompliance With Environmental Laws: A Mediation Analysis*, 43 Am. J. Crim. Just. 530 (2017); Kathleen F. Brickey, Environmental Crime: Law, Policy, Prosecution (Aspen Publishers, Inc. 2008); Joshua Ozymy & Melissa Jarrell, *Why Do Regulatory Agencies Punish? The Impact of Political Principals, Agency Culture, and Transaction Costs in Predicting Environmental Criminal Prosecution Outcomes in the United States*, 33 Rev. Pol'y Res. 71 (2016); Lynch et al., *supra* note 5.
16. Ole R. Holsti, Content Analysis for the Social Sciences and Humanities (Addison Wesley 1969).

web search, so it is excluded here and in the analysis, as it did not meet the selection criterion for the other cases that they be found by searching the database by fiscal year.[17]

There are a few limitations to our approach. The first is our inability to understand the role of the prosecutor in the cases. We cannot know the role of state and local environmental agencies and prosecutors in these cases. Most enforcement actions occur in the states, or arguably many if not most of these prosecutions involve state- and/or local-level cooperation. Finally, the data set is only as complete as EPA's database. The Agency could have failed to include cases, and other agencies may have undertaken environmental criminal prosecutions that are not represented herein. These limitations aside, this data set represents the most complete accounting of EPA criminal prosecutions in the literature. It helps us understand how these prosecutions are distributed geographically within and across regional offices, as well as the nature of defendants and punishments.

III. Results

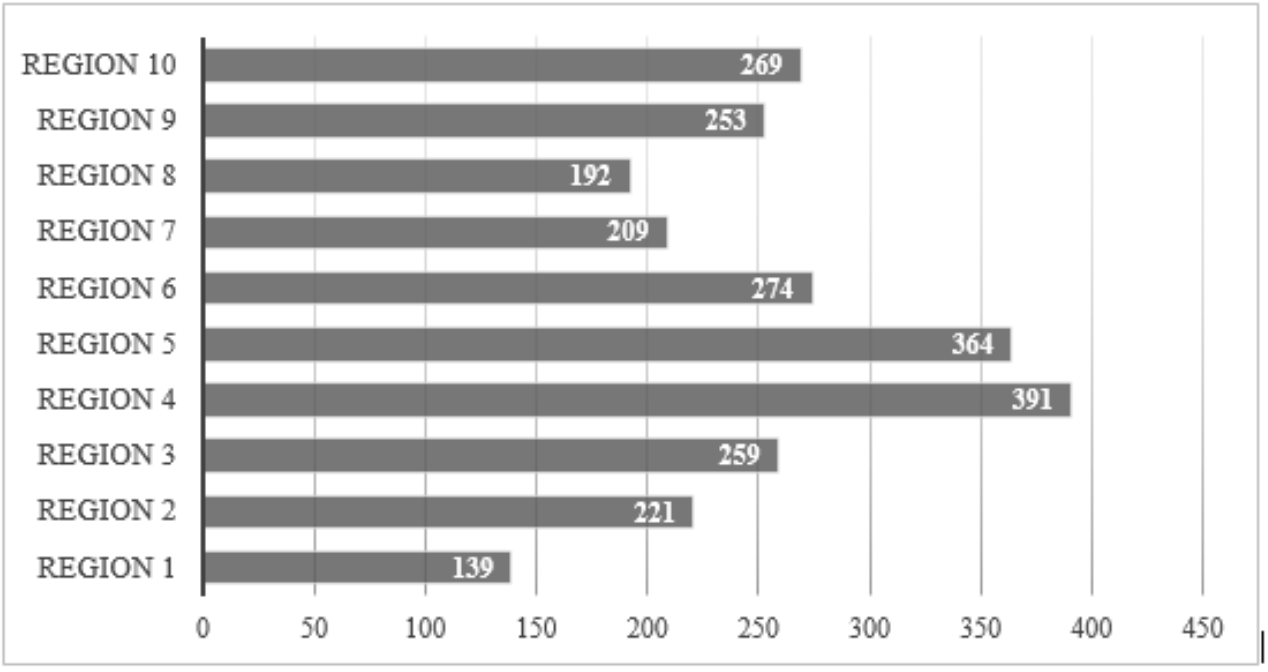
Figure 1 displays the total number of prosecutions per regional office from 1983 to 2019. Total prosecutions range from 139 in Region 1 to 391 in Region 4, with an average of 257 prosecutions per region over this time period. These numbers represent the total prosecutions found in the database for each region from the beginning of fiscal year 1983 to the end of calendar year 2019. As with all results below, the 2019 fiscal year for EPA had not yet ended and data collection ended as of December 2019. The total prosecutions equaled 2,571 cases in the data set.

Table 1 breaks down the prosecutions by major federal environmental law across all 10 EPA regions, from 1983 to 2019. These figures are generated through content analysis, where we identify major charging statutes in each prosecution. In this vein, one case may use multiple federal environmental statutes to charge defendants depending on the nature of the crime(s).

For example, in Region 1, there were 38 cases where defendants were charged under the CWA. In this same region, we found 16 cases where defendants were charged under the Clean Air Act (CAA),[18] 25 under RCRA, six cases where the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)[19] was used to prosecute offenders, six cases involving the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),[20] and six cases involving the Toxic Substances Control Act (TSCA).[21] In 23 criminal cases, defendants were charged under a variety of state laws. At 827 cases, the CWA was by far the most used statute to prosecute environmental crimes in the data set. Both the CAA and RCRA were used in similar numbers (376 and 396, respectively).

Common scenarios for explaining the prevalence of CWA prosecutions include illegal discharge and improper recordkeeping for public and private organizations. Illegal

Figure 1. Total Criminal Prosecutions Per EPA Region, 1983-2019



Source: EPA Summary of Criminal Prosecutions database.

17. U.S. EPA, *Summary of Criminal Prosecutions*, https://cfpub.epa.gov/compliance/criminal_prosecution/index.cfm?action=3&prosecution_summary_id=2468 (last updated Apr. 1, 2020).

18. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
19. 7 U.S.C. §§136-136y, ELR Stat. FIFRA §§2-35.
20. 42 U.S.C. §§9601-9675, ELR Stat. CERCLA §§101-405.
21. 15 U.S.C. §§2601-2692, ELR Stat. TSCA §§2-412.

Table 1. Total Criminal Prosecutions Per EPA Region by Major Environmental Statute, 1983-2019

EPA Region	CWA	CAA	RCRA	FIFRA	CERCLA	TSCA	State Law
Region 1	38	16	25	6	6	6	23
Region 2	44	60	25	7	13	8	38
Region 3	111	48	37	3	9	13	11
Region 4	122	49	77	35	9	3	35
Region 5	113	70	42	15	7	11	62
Region 6	103	38	50	10	6	3	38
Region 7	75	25	34	12	11	13	19
Region 8	56	16	31	13	5	2	57
Region 9	75	33	35	17	4	6	43
Region 10	90	21	40	5	7	6	70
Total	827	376	396	123	77	71	396

Source: EPA Summary of Criminal Prosecutions database.

disposal and transport were very common scenarios for RCRA charges, as well as improper or illegal discharge of regulated substances under the CAA, which were typically assessed to stationary sources of pollution. Other common occurrences were the illegal application or storage of pesticides in home and commercial application (FIFRA cases) or the illegal use of pesticides to kill wildlife, which were often prosecuted in conjunction with the Migratory Bird Act.

While it is beyond the scope of this Comment to explore whether criminal sanctions have their deterrent effect or are always used for serious offenses or chronic infractions, we can speak to the latter issue in Table 2 (on page 10456). In the second column, we collect data on the total number of cases per region that involved non-environmental criminal charges. While these charges may have been filed in addition to an environmental crime, they represent the Agency's efforts to punish serious offenses. We see a variety of criminal charges in the cases, but they cluster tharound false statements, obstruction, wire and mail fraud, and in more limited cases charges such as embezzlement, manslaughter, and Racketeer Influenced and Corrupt Organizations Act charges.

Looking at the cases more organically, we can see there is a mix of prosecutions, from very serious cases such as the BP Texas City refinery explosion or the *Deepwater Horizon* disaster, to the Volkswagen AG emissions-rigging fraud, to cases where company negligence led to death. There are many other cases where the act might arguably be seen as marginal for the resources of a criminal prosecution (e.g., illegal use of pesticides that killed migratory birds), but it is impossible across so many cases to gauge the intent of the defendants and motivations of the prosecutors over 37 years of criminal prosecutions. Our sense is that many of these are willful violations and repeat offenses that were likely the result of previous state and federal civil actions against the defendants. Outside of those cases with serious environmental or human impacts, many of these cases look like examples of defendants engaging in willful acts to subvert the law (i.e., false statements in conjunction with CWA or CAA violations were common). Overall, we find that 951 cases contain at least one non-environmental criminal charge, or approximately 38% of the cases in the analysis.

Another measure we use to gauge the seriousness of the charges is the number of identifiable victims. In Column 3, we aggregate the number of cases per region where at least one individual was injured or killed. We used a strict protocol here to identify cases where the case summary itself mentions a person was directly impacted in the case. We find 93 cases across the regions that fit these criteria.

In Column 4, we aggregate the total number of defendants across the cases in each region to give a better sense of the number of individuals prosecuted within these 2,571 cases. We find evidence that 4,402, or an average of approximately 1.7 defendants, were prosecuted per case in the data set. Because it is difficult to ascertain which defendants are incorporated versus those business organizations that are not in the data set, we used the blanket term "company defendant" to refer to any case where an organization was prosecuted. This measure gives us a sense of the number of cases in which EPA was willing to pursue charges against an entity that is arguably going to have more resources than an individual. We find that 1,089 such defendants were prosecuted across the data set.

Table 3 aggregates the total penalties assessed to individual and company defendants in the analysis, from 1983 to 2019. In the second column, we find $11,619,400 in fines assessed to individual defendants in Region 1. We find 3,689 months of probation assessed to individuals in this region, as well as 1,536 months of incarceration. Company defendants were assessed almost $108 million in fines and 1,585 months of probation. If we include the $2.8 billion fine against Volkswagen AG, company defendants were assessed more than $5 billion in fines across all regions over the 37 years in the data set. Individuals were assessed

Table 2. Total Non-Environmental Criminal Charges, Victims, Defendants, and Company Defendants Per EPA Region, 1983-2019

EPA Region	Criminal Charges	Victims	Defendants	Company Defendants
Region 1	50	2	230	70
Region 2	97	14	453	108
Region 3	110	8	439	100
Region 4	158	9	700	154
Region 5	139	9	643	151
Region 6	103	13	506	123
Region 7	62	4	306	83
Region 8	56	10	299	88
Region 9	95	16	407	110
Region 10	81	8	419	102
Total	951	93	4,402	1,089

Source: EPA Summary of Criminal Prosecutions database.

Table 3. Total Penalties Assessed to Individuals and Companies Per EPA Region, 1983-2019

EPA Region	Individual Fine	Individual Probation	Prison	Company Fine	Company Probation
Region 1	11,619,400	3,689	1,536	107,992,598	1,585
Region 2	112,474,060	7,140	5,177	243,876,125	2,604
Region 3	68,817,728	7,966	3,397	70,909,704	3,286
Region 4	96,173,152	11,972	5,513	328,741,604	4,401
Region 5	205,098,760	8,716	5,713	2,952,490,178	3,005
Region 6	254,594,092	8,912	2,696	648,939,446	3,198
Region 7	10,783,610	5,638	2,464	159,573,041	1,560
Region 8	8,409,258	4,476	1,195	121,140,651	1,530
Region 9	30,542,110	7,053	1,837	242,310,441	2,553
Region 10	53,743,722	7,336	1,823	141,778,977	3,507
Total	852,255,892	72,898	31,351	5,017,752,765	27,229

Source: EPA Summary of Criminal Prosecutions database.

Note: Individual and company fines in nominal dollars; probation and incarceration in months. Large company fine totals in Region 5 include the $2.8 billion fine for emissions-rigging assessed to Volkswagen AG in Michigan.

more than $850 million in fines, and all defendants were assessed more than 100,000 months of probation.

In many cases, defendants were assessed alternative punishments to fines, probation, and incarceration. These alternative penalties included community service, home confinement, and community corrections. In the second column in Table 4, we show that more than 107,000 hours of community service were assessed to all defendants across regions, from 1983 to 2019. We find 1,886 months of home confinement assessed to defendants across all regions as well. Finally, there were 3,531 months of community corrections assessed to defendants in the data set.

In the final table in the analysis, we aggregate punishments across regions to show the total fines and probation assessed to all defendants by region from 1983 to 2019. Excluding the $2.8 billion Volkswagen fine, total fines range from approximately $119 million in Region 1 to over $900 million in Region 6. Total probation ranges from 5,274 months in Region 1 to 16,373 months in Region 4. In Column 4, we use EPA's Enforcement and Compliance History Online (ECHO) database to measure the total number of regulated facilities per state or U.S. territory

Table 4. Alternative Penalties Assessed Per EPA Region, 1983-2019

EPA Region	Community Service	Home Confinement	Community Corrections
Region 1	5,160	72	58
Region 2	7,990	188	96
Region 3	17,261	204	357
Region 4	16,294	418	630
Region 5	17,709	364	815
Region 6	13,993	153	209
Region 7	2,465	84	248
Region 8	7,382	92	288
Region 9	8,965	167	227
Region 10	10,594	144	603
Total	107,813	1,886	3,531

Source: EPA Summary of Criminal Prosecutions database.

Note: Community service is assessed in hours; home confinement and community corrections are assessed in months.

Table 5. Total Fines, Total Probation, Total Regulated Facilities, and Average Fine Per Facility by EPA Region, 1983-2019

EPA Region	Total Fine	Total Probation	Total Facilities	Average Fine Per Facility
Region 1	119,611,998	5,274	54,516	2,194
Region 2	356,350,185	9,744	82,214	4,334
Region 3	139,727,432	11,252	116,973	1,195
Region 4	424,914,756	16,373	177,374	2,396
Region 5*	357,588,938	11,721	196,915	1,816
Region 6	903,533,538	12,110	136,026	6,642
Region 7	170,356,651	7,198	55,322	3,079
Region 8	129,549,909	6,006	60,310	2,148
Region 9	272,852,551	9,606	246,717	1,106
Region 10	195,522,699	10,843	30,254	6,463

* These figures exclude the $2.8 billion fine levied against Volkswagen AG in Region 5 to provide comparable estimates.

Source: EPA Summary of Criminal Prosecutions database.

Note: Total fine in nominal dollars, total probation in months, total regulated facilities from ECHO, and average fine per facility in nominal dollars.

as of March 1, 2020, and aggregate those per region.[22] By example, Region 9 has 246,717 regulated facilities.

While this is very imperfect as we are aggregating historical data with a snapshot of data given one point in time, we divide regulated facilities per region by total fines, 1983-2019, to give a sense of the average fine per facility if the number of facilities were static. Doing so estimates that if all fines over these 37 years were averaged over all the regulated facilities in Region 1, the average fine per facility would equal $2,194.

IV. Conclusion

It is less costly and politically more tenable to seek civil remedies rather than pursue criminal charges against individuals and well-resourced companies.[23] EPA faces extraordinary policy responsibilities relative to its staff and enforcement abilities. It is not surprising, given the cost of criminal prosecution, that the Agency favors civil rem-

22. U.S. EPA, *Enforcement and Compliance History Online (ECHO)*, https://echo.epa.gov/ (last updated Apr. 1, 2020).

23. Mark Atlas, *Enforcement Principals and Environmental Agencies: Principal-Agent Relationships in a Delegated Environmental Program*, 41 Law & Soc'y Rev. 939 (2007); Kathleen F. Brickey, *Environmental Crime at the Crossroads: The Intersection of Environmental and Criminal Law Theory*, 71 Tul. L. Rev. 494 (1996).

edies. Political support for the Agency is also often mixed or nonexistent. Does the Agency reserve criminal prosecution for serious and/or chronic cases of offending?

Our findings represent the first effort to catalog the history of environmental criminal prosecutions within and across EPA regional offices. We find the Agency pursued criminal charges to prosecute 2,571 cases of environmental offenses criminally in the past 37 years that we could properly identify across these regional offices. Those defendants charged criminally were predominantly charged under the CWA, CAA, and RCRA, as well as a variety of other federal environmental statutes and state laws.

In terms of the severity of the charges levied against defendants, we find that in 38% of cases, defendants were charged with non-environmental criminal charges, sometimes exclusively, but often in conjunction with charges under a limited set of federal environmental statutes. We were also able to identify 93 cases with victims and more than 1,089 cases with companies as defendants. Cumulatively, 4,402 defendants were prosecuted across the regional offices in our analysis.

Punishments and caseloads varied across regions. While Region 4 had the largest number of prosecutions, Region 5 fined defendants more money than any other region, but that number includes the $2.8 billion fine against Volkswagen AG, and we do not include the largest fine against BP for the *Deepwater Horizon* disaster as it was not searchable in the database. Absent a half-dozen large-penalty cases, it is difficult to assess whether these penalties occur because of differences in the regional cultures of the offices or they are more opportunistic. Using a rough measure of fines per regulated facility would suggest Regions 6 and 10 to be the most punitive, or Regions 4 and 6 if the measure were total probation.

Our more organic estimate, having spent thousands of hours reviewing these cases in detail and spending time participating in a multi-year criminal prosecution of environmental crimes from investigation to sentencing and appeal, suggests to us that EPA is not wasting its resources to cherry-pick easy cases. Punishing someone criminally for intentionally killing a bald eagle with registered pesticides may have resulted from a one-time offense, but our guess is that most of these cases are undertaken because of chronic violations. Certainly, there are many cases where companies could have been prosecuted criminally and are not included in the data set, but the Agency decided against it or, just as likely, the federal resources in the form of prosecutorial support were not available.

The authors had the opportunity to spend the better part of a decade assisting DOJ prosecutors in pursuing criminal charges against a large foreign corporation for violations of the CAA and Migratory Bird Act. We saw firsthand the amount of resources it took to target a company that had been a chronic violator at the state and federal levels, and the amount of cooperation and resources it took to create a legal team that could adequately investigate and bring charges and prosecute the case. We also saw sentencing take years, only to have a guilty verdict overturned later upon appeal. Reading these case narratives allowed us to see similar narratives unfold across time and space not to the same degree of detail, but it cast doubt in our minds that the Agency expends considerable resources on criminal investigation and prosecution if the matter is not serious or chronic.

If we have evidence the Agency pursues criminal charges with the intent of punishing willful or chronic violators, what is the deterrent effect of their efforts? Our analysis cannot speak to this directly, but one must weigh the evidence in the context of the vast array of facilities EPA regulates, and the number of cases prosecuted over almost four decades. Region 6 encompasses a vast oil and gas empire across Louisiana, Oklahoma, and Texas, as well as Arkansas and New Mexico, but prosecuted only 274 cases since 1983. Does this have a deterrent effect on environmental crime? A fuller answer requires deeper analysis following the path of civil sanctions through criminal prosecutions and tracking an array of defendants over time.

ACCELERATING ENERGY TRANSITION IN INDIA: A COMPARATIVE PERSPECTIVE

by Uma Outka

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> [C]hange in the Earth's climate and its adverse effects are a common concern of humankind.[1]

This statement, drawn from the preamble to the United Nations Framework Convention on Climate Change (UNFCCC), encapsulates the most basic premise for international cooperation to mitigate climate change and adapt to impacts of rising temperatures and seas. The UNFCCC, a treaty signed more than one-quarter century ago by nearly every nation on earth, recognized the need to "adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs."[2]

Two decades passed, with more negotiation than progress, as global greenhouse gas (GHG) emissions continued to rise.[3] The year 2015 marked a new era in UNFCCC climate efforts, however, when the nations of the world signed a new implementing agreement in Paris, France.[4] Under the Paris Agreement, Parties committed to make "nationally determined contributions to the global response to climate change"[5] toward a specific consensus end: "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change."[6]

Parties agreed to submit nationally determined contributions (NDCs) to the United Nations, detailing how domestic law and policy would reduce emissions within national borders, understanding that successive filings would intensify in ambition, and reflecting that each nation has "common but differentiated responsibilities and respective capabilities, in the light of different national circumstances."[7] These caveats express the critical recognition that Parties to the treaty come to the challenge of climate mitigation under widely varying environmental, economic, and social circumstances.

In this respect, India stands out with an especially ambitious NDC—a plan that aims for more than any other major emitter that has submitted a plan to date. This Comment focuses on India's NDC as it pertains to energy systems, and in particular, transitioning the electricity sector to a modern, low-carbon grid. It first provides an overview of India's renewable energy goals in comparative context with other top emitters. Comparative energy policy analysis provides insight into reform models that may have broader applicability, and although regulatory regimes governing electricity vary from one country to the next, there are often substantial commonalities that comparative work can highlight.

With this in mind, the Comment addresses two examples of policy innovation in India that build on trends in renewable energy law worldwide: (1) aligning corporate demand for clean power with renewable energy targets, and (2) minimizing renewables' intermittency and land use impacts through hybrid renewables policy. The first corresponds with the trend of an increasing number of multinational companies pledging to power their operations using renewable energy.[8] It also reflects a shift in the elec-

1. United Nations Framework Convention on Climate Change, May 9, 1992, pmbl., S. Treaty Doc. No. 102-38, 1771 U.N.T.S. 107 [hereinafter UNFCCC]. *See* UNFCCC, *Status of Ratification of the Convention*, http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php (last visited Apr. 24, 2020) (listing dates of signature and receipt of instruments of ratification by the Secretary-General of the United Nations).
2. UNFCCC, *supra* note 1, art. 4.2(a).
3. For readers interested in a brief overview of the history of international climate negotiations since the UNFCCC was signed in 1992, see UNFCCC, *UNFCCC—25 Years of Effort and Achievement: Key Milestones in the Evolution of International Climate Policy*, http://unfccc.int/timeline/ (last visited Apr. 24, 2020). For more in-depth accounts of the development of international climate change law, the following two recent publications will be helpful: Daniel Bodansky et al., International Climate Change Law (2017); Daniel A. Farber & Cinnamon P. Carlarne, Climate Change Law: Concepts and Insights (2017).
4. Paris Agreement to the UNFCCC, Dec. 12, 2015, T.I.A.S. No. 16-1104, https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.
5. *Id*. art. 3.
6. *Id*. art. 2(1)(a).
7. *Id*. art. 2(2).
8. *See* Scott Fulton et al., *Renewable Energy: Corporate Obstacles and Opportunities*, 50 ELR 10181 (Mar. 2020).

tricity sector toward a more prominent role for consumers. Although most of this demand has been focused on the United States and Europe to date, it is now expanding into India as well. This trend has potential to help advance with India's renewable energy goals if regulatory barriers can be eliminated to facilitate companies' access to renewable projects.

The second, India's new National Wind-Solar Hybrid Policy, represents a future-facing innovation to balance the variability of one renewable resource with another. In crafting and refining this policy, India is charting a pathway that, if it continues, other countries would do well to follow in the coming years.

I. India's Plan for Climate Change Mitigation

India needs the world's most urgent collective response to climate change. As the Indian government acknowledges in its NDC, "[f]ew countries in the world are as vulnerable to the effects of climate change as India."[9] Nearly 85% of India is highly vulnerable to climate hazards, such as flooding and extreme weather, which can be especially devastating for the close to two-thirds of Indians who support themselves in agriculture.[10] As the population continues to increase—India is expected to surpass China as the most populous country in the world as soon as 2022—climate impacts will be amplified by the vast number of people whose lives will be affected.[11]

India's plan for climate mitigation under the Paris Agreement stands out for its ambition against the backdrop of weaker commitments from other top emitters. The Climate Action Tracker, maintained by a consortium of scientists evaluating the efficacy of the NDCs countries submit to the United Nations, rates India's plan as the only NDC among the top 10 emitters to be "compatible" with the Paris Agreement's 2°C target.[12] The European Union, Brazil, and Mexico are rated "insufficient," China, Canada, Indonesia, and Japan are rated "highly insufficient," and the United States (following President Donald Trump's announcement of intent to withdraw from the Paris Agreement in 2017) and Russia are rated "critically insufficient."[13]

India's ambition is especially noteworthy, given that it is the country with the greatest number of people lacking electricity service of any in the G20—more than 239 million people, or 18% of the population.[14] Although India is a top-10 emitter when measured in total emissions, it is important to recognize that the top three emitters—China, the United States, and the European Union—account for nearly one-half of all global emissions.[15] Together with India, Mexico, Brazil, Canada, Indonesia, Japan, and Russia, the top 10 collectively are responsible for nearly three-quarters of GHG emissions worldwide.[16] Refocusing on per capita emissions, however, shows India's contribution to be much lower than the rest of the top 10, and indeed, well below the world average.[17]

Yet, even with its ambitious plans for renewable energy development, India's GHG emissions are expected to rise significantly—even double—by 2030, as the economy and population continue to grow.[18] The Indian government has estimated that "more than half of India of 2030 is yet to be built."[19] India's contribution is therefore vitally important to global climate change mitigation, even as it approaches that goal alongside a range of sustainable development objectives critical for the well-being of its more than one billion citizens—poverty alleviation, expanding energy access, and ensuring all have clean water.[20]

India's NDC covers a wide range of areas relevant to emissions reduction—from energy systems and transport to agriculture—as well as preservation of carbon sinks, such as through forest preservation and afforestation.[21] The most critical element related to energy systems, the focus of this Comment, is India's ambition to rapidly accelerate renewable energy development to 175 gigawatts (gW) by 2022, excluding large hydropower—a dramatic increase from 36 gW at the time of the NDC submission.[22] With sig-

9. India's Intended Nationally Determined Contribution: Working Towards Climate Justice 4 (2016) [hereafter India NDC], https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/India%20First/INDIA%20INDC%20TO%20UNFCCC.pdf.
10. *Id*. at 4, 24.
11. *See* Our World in Data, *Historic and Projected Population, 1950 to 2100*, https://ourworldindata.org/grapher/historic-and-projected-population?time=1950.2100 (last visited Apr. 24, 2020) (India and China graphic). *See also UN Projects World Population to Reach 8.5 Billion by 2030, Driven by Growth in Developing Countries*, United Nations, July 29, 2015, https://news.un.org/en/story/2015/07/505352-un-projects-world-population-reach-85-billion-2030-driven-growth-developing.
12. *See* Climate Action Tracker, *Home Page*, https://climateactiontracker.org (last visited Apr. 24, 2020). For a discussion of the rating system, see Climate Action Tracker, *Rating System*, https://climateactiontracker.org/countries/rating-system/ (last visited Apr. 24, 2020).
13. *See* Climate Action Tracker, *Home Page, supra* note 12. For more on the top emitters, see Johannes Friedrich et al., *This Interactive Chart Explains World's Top 10 Emitters, and How They've Changed*, World Resources Inst., Apr. 11, 2017, http://www.wri.org/blog/2017/04/interactive-chart-explains-worlds-top-10-emitters-and-how-theyve-changed (graphic).
14. *See* Xander van Tilburg et al., Ambition to Action, NDC Update Report Special Edition: Linking NDCs and SDGs 19 (2018), *available at* http://ambitiontoaction.net/wp-content/uploads/2018/05/NDC-Upadate-Report-May-2018.pdf; REN21, Renewables 2018 Global Status Report 127 (2018), *available at* https://www.ren21.net/wp-content/uploads/2019/05/GSR2018_Full-Report_English.pdf. These numbers represent a significant achievement, bringing access to 82% from only 43% of the population in 2000. International Energy Agency, Global Energy & CO_2 Status Report 2017, 11 (2018), *available at* https://webstore.iea.org/global-energy-co2-status-report-2017.
15. *See* Mengpin Ge & Johannes Friedrich, *4 Charts Explain Greenhouse Gas Emissions by Countries and Sectors*, World Resources Inst. (Feb. 6, 2020), https://www.wri.org/blog/2020/02/greenhouse-gas-emissions-by-country-sector (based on 2016 data).
16. *See id*.
17. International Energy Agency, *supra* note 14, at 4.
18. Navroz K. Dubash & Ankit Bhardwaj, *Guest Post: India's Emissions Will Double at Most by 2030*, Carbon Brief, Aug. 22, 2018, https://www.carbonbrief.org/guest-post-indias-emissions-will-double-at-most-by-2030 (citing Navroz K. Dubash et al., *India's Energy and Emissions Future: An Interpretive Analysis of Model Scenarios*, 13 Envtl. Res. Letters (2018)).
19. India NDC, *supra* note 9, at 6.
20. *See id*. at 4. For information on the United Nations Sustainable Development Goals (SDGs), see https://sustainabledevelopment.un.org/?menu=1300 (last visited Apr. 24, 2020). For a recent report assessing synergies and potential conflicts between climate mitigation efforts under the Paris Agreement and the SDGs, see generally van Tilburg et al., *supra* note 14.
21. *See generally* India NDC, *supra* note 9.
22. *Id*. at 9. There is already 45 gW of large hydropower in India, but the government's focus for new hydropower is on expanding small systems at the village scale. *Id*. at 9-10.

nificant energy development over the past two years, India ended 2017 ranked among the top five countries for total renewable power capacity, as well as for new investment in renewable power and fuels.[23] India is expected to continue its upward trajectory in electricity demand, with ongoing efforts to expand energy access in rural areas.[24]

Most utility-scale renewable energy development in India is focused on solar and wind power, with roughly 18 gW and 33 gW of capacity respectively at the end of 2017—a record year for wind in India.[25] The year 2017 also saw a record 8 gW of solar photovoltaic (PV) capacity brought online, which doubled 2016 additions.[26] India leads in building mega-solar farms, with the first phase of a 2,000-megawatt (MW) plant—the world's largest to date—dedicated in 2018 in Karnataka.[27] This growth has continued at a rapid rate—by July 2019, India recorded 80 gW of renewable energy, or 22.4% of total installed power capacity.[28]

As renewable energy now exceeds 26% of global electricity generation, energy law and policy is in a dynamic state of flux and innovation, in India as well as in other countries around the world where renewable energy development is taking place.[29] As new policy is formulated, it often becomes clear that preexisting laws—crafted decades previously, in many instances, in support of a heavily centralized, fossil energy-based electric grid—need reform. The degree to which countries can learn from others' experiences depends on the energy resources of each, as well as the capacity for regulatory structures and governance institutions to adapt and advance, rather than hinder, the emergence of a modern, low-carbon grid.

To demonstrate this, what follows offers just two examples of current global trends in the electricity sector, the first in which India is building on other countries' experience, the second in which India is leading policy innovation in a direction other countries may well adapt to their own regulatory contexts.

II. Harnessing Corporate Demand for Renewable Energy

Name-brand multinational companies like Google, Apple, and Facebook are increasingly garnering media attention for making "100 percent renewable" pledges—setting a goal to match their operations' energy consumption with renewable energy generation.[30] In the United States, this corporate demand for clean power is playing a key role in driving continued renewable energy development, despite President Trump's withdrawal from the Paris Agreement and reemphasis on fossil fuels.[31] To give voice to these companies, the RE100 initiative was launched in 2014 to collect and publicize the "100 percent renewable" pledges.[32] As of this writing, there were more than 220 multinational companies pledged through RE100.[33]

Most companies that have joined the RE100 ranks are based in the United States and Europe,[34] and most corporate renewable deals to date have been located there. This demand is expanding now into India and China, however.[35] As of December 2019, five Indian companies and four Chinese companies had become members, with interest among other Indian companies reportedly growing.[36] Companies in the Asia Pacific region, including India, accounted for 40% of new RE100 members, underscoring the region's growth potential.[37] Many multinational companies based elsewhere have a business interest in India that will result in their seeking access to clean power there. For example, Microsoft announced this year that it signed an agreement to purchase solar power from Atria Power for a new office building it has constructed in Bangalore.[38] Similarly, the clothing retailer H&M is working with its

23. The countries with the highest total renewable power capacity at the end of 2017, including hydro, were the United States, Brazil, China, Germany, and India. The top five countries excluding hydro were China, the United States, Germany, India, and Japan. The top countries for investment in renewable power and fuels not including hydro over 50 megawatts were China, the United States, Japan, India, and Germany. *See* REN21, *supra* note 14, at 25.
24. International Energy Agency, *supra* note 14, at 11. IEA, *Global Electricity Demand by Region in the Stated Policies Scenario, 2000-2040*, IEA, Nov. 21, 2019, https://www.iea.org/data-and-statistics/charts/global-electricity-demand-by-region-in-the-stated-policies-scenario-2000-2040. *See also* Bruce Murphy & Hannah Daly, *Electricity in Every Village in India*, Int'l Energy Agency, June 1, 2018, https://www.iea.org/newsroom/news/2018/june/commentary-electricity-in-every-village-in-india.html (on Indian government's announcement that as of April 28, 2018, electricity reached every village in India for the first time, with a next goal being universal household electricity access).
25. REN21, *supra* note 14, at 179.
26. International Energy Agency, *supra* note 14, at 9.
27. Tom Kenning, *1st Phase of World's Largest Solar Park to Be Inaugurated Today in Karnataka, India*, PVTech, Mar. 1, 2018, https://www.pv-tech.org/news/worlds-largest-solar-park-to-be-inaugurated-today-in-karnataka-india.
28. Mridul Chadha, *India: Renewable Energy Dominates 1st Half of 2019 With 58% Share in New Capacity*, CleanTechnica, July 22, 2019, https://cleantechnica.com/2019/07/22/indias-renewable-energy-dominates-1st-half-of-2019-with-58-share-in-new-capacity/ (citing government of India data). Large hydroelectric and nuclear power facilities constitute an additional 14% of low-carbon installed capacity. *Id.*
29. *See* International Renewable Energy Agency, Global Energy Transition: A Roadmap to 2050, at 10 (2018), *available at* https://irena.org/-/media/Files/IRENA/Agency/Publication/2018/Apr/IRENA_Report_GET_2018.pdf; REN21, Renewables 2019: Global Status Report, *available at* http://www.ren21.net/gsr-2019/ (last visited Apr. 24, 2020).
30. *See*, *e.g.*, Google, Achieving Our 100% Renewable Energy Purchasing Goal and Going Beyond 1 (2016), https://static.googleusercontent.com/media/www.google.com/en//green/pdf/achieving-100-renewable-energy-purchasing-goal.pdf; Press Release, Apple, Apple Now Globally Powered by 100 Percent Renewable Energy (Apr. 9, 2018), https://www.apple.com/newsroom/2018/04/apple-now-globally-powered-by-100-percent-renewable-energy/; Joshua S. Hill, *Facebook Commits to 100% Renewable Energy & 75% GHG Emissions Reduction by 2020*, CleanTechnica, Aug. 30, 2018, https://cleantechnica.com/2018/08/30/facebook-commits-to-100-renewable-energy-75-ghg-emissions-reduction-by-2020/.
31. Readers interested in this trend should note that the author's recent work includes an in-depth analysis of this trend in the United States and energy law developments at the state level. *See* Uma Outka, *"100 Percent Renewable": Company Pledges and State Energy Law*, 2019 Utah L. Rev. 661 (2019).
32. *See generally* RE100, *Home Page*, http://re100.org (last visited Apr. 24, 2020).
33. *Id.*
34. RE100, Approaching a Tipping Point: How Corporate Users Are Redefining Global Electricity Markets 8-9 (2018), *available at* https://www.theclimategroup.org/sites/default/files/re100_annual_report.pdf.
35. REN21, *supra* note 14, at 177.
36. RE100, Progress and Insights Annual Report annex 1 (2019), *available at* http://media.virbcdn.com/files/5c/aa8193f038934840-Dec2019RE100ProgressandInsightsAnnualReport.pdf.
37. *Id.* at 3.
38. *Microsoft Announces First Renewable Energy Deal in India*, Microsoft, Mar. 5, 2018, https://news.microsoft.com/2018/03/05/microsoft-announces-first-renewable-energy-deal-in-india/.

supply chain firms in Bangladesh, China, and India to shift to renewables.[39]

In light of India's ambitious goals for renewable energy growth, it is positioned to meet demand from companies that wish to contribute to new renewable development, consistent with the principle of additionality. "Additionality" is defined in this context as "access to new projects that reduce emissions beyond business as usual" by the Renewable Energy Buyers Alliance, which includes it among the Corporate Renewable Energy Buyers' Principles it developed to guide policy development designed to meet corporate demand.[40]

Many companies now eschew or avoid the use of unbundled renewable energy credits (RECs)—that is, those sold separately from the underlying electricity generated by renewable energy—and instead favor buying clean power bundled with its associated RECs. Although unbundled RECs have been used worldwide as a way to offset energy use, they are often associated with facilities that have already been built. For this reason, companies are questioning their value for advancing a low-carbon shift in the electricity sector, and seeking instead to help new renewable energy facilities to be built.[41]

India may have an advantage in this regard due to its projected increase in demand for electricity and corresponding need for new large-scale installations. In the United States, by contrast, where residential and commercial electricity demand is expected to remain relatively flat, corporate demand for new renewable energy facilities can present a quandary for utilities, which may struggle to respond to companies' requests without producing surplus electricity, potentially leading to curtailments, or retiring coal-fired power plants.[42] Moreover, the Indian Companies Act 2013 requires larger companies to devote resources each year to corporate social responsibility (CSR) activities, which include enhancements for environmental sustainability. The NDC estimates "that a fair share of the available CSR funding of about 220 billion Indian Rupee (USD 3.5 billion) annually will be invested in environment initiatives."[43]

Falling prices for renewable energy, however, means that, increasingly, the switch to wind or solar is economically beneficial above all. Google, for example, cites a desire to insulate its business from "fuel-price volatility" using long-term renewable energy contracts.[44] In India, RE100 members including Tesla Motors and Infosys regard the "business case for switching" as "strong in India" due to falling costs of renewables and evolving technology.[45]

The World Resources Institute, through the Green Power Market Development Group (GPMDG), has been convening stakeholders and advocating for better alignment of national and state-level energy policy in India with companies' interest in renewable energy so that each is mutually reinforcing.[46] Corporate deals have been accomplished in India, but companies that have explored such contracts have encountered delays and regulatory barriers that, if addressed, would support this alignment and streamline such projects. The GPMDG, for example, is working on ways to aggregate large consumer demand so that it can be directed in support of a utility-scale renewable energy facility.[47]

A 2018 report by the World Business Council for Sustainable Development collected recommendations based on companies' experiences to date to guide reforms to provide predictability and more effective facilitation of corporate procurement objectives.[48] Regulatory variability state-to-state is a primary barrier that, if minimized, could accelerate corporate procurement of new renewable projects in India. Clear policy and regulatory support for such transactions will ease the paths for more corporate investment in the rapid renewable energy deployment plan outlined in India's NDC.[49]

III. Policy Innovation for Hybrid Renewable Energy

Although wind and solar resources are commonly grouped together in renewable energy law and policy, the wind and solar industries have developed along related but separate trajectories. As a result, most renewable energy facilities are based on one type of renewable energy—it may be a wind farm, it may be a solar PV park, but typically projects have not featured both.

A recent policy innovation by India's Ministry of New and Renewable Energy (MNRE) seeks to bridge this divide to the advantage of both renewable resources. In May 2018, the MNRE finalized the National Wind-

39. RE100, *supra* note 34, at 40.
40. *See* Renewable Energy Buyers Alliance (REBA), *Corporate Renewable Energy Buyers' Principles*, https://buyersprinciples.org/principles/ (last visited Apr. 24, 2020). Note that additionality is a concept with deep roots in the UNFCCC implementation, especially in regard to the development of criteria for projects under the Clean Development Mechanism. For more on this, see, e.g., Charlotte Streck, *Ensuring New Finance and Real Emission Reduction: A Critical Review of the Additionality Concept*, 2011 Carbon & Climate L. Rev. 158 (2011).
41. *See* REBA, *supra* note 40.
42. U.S. Energy Information Administration, Annual Energy Outlook 2019, 12 (2019), https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf.
43. India NDC, *supra* note 9, at 18. For an overview of CSR requirements applicable to Indian companies, see PricewaterhouseCoopers, Handbook on Corporate Social Responsibility in India (2013), *available at* https://www.pwc.in/assets/pdfs/publications/2013/handbook-on-corporate-social-responsibility-in-india.pdf. For text of the statute, see the Companies Act 2013 (India 2013), http://www.mca.gov.in/Ministry/pdf/CompaniesAct2013.pdf.
44. Google, *supra* note 30, at 4.
45. RE100, *supra* note 34, at 36.
46. *See* World Resources Institute, *Green Power Market Development Group*, https://www.wri.org/our-work/project/electricity-initiative/scaling-indias-clean-energy-green-power-market-development (last visited Apr. 24, 2020) (concept for scaling up renewable energy in India).
47. *See generally* Alex Perera et al., *5 Reasons India Needs a Green Power Purchasing Group*, Green Power Market Dev. Group, Jan. 9, 2013, https://gpmdg.org/blog/5-reasons-india-needs-a-green-power-purchasing-group/.
48. World Business Council for Sustainable Development, Accelerating Corporate Procurement of Renewable Energy in India 30-31 (2018), *available at* https://www.wbcsd.org/Programs/Energy-Circular-Economy/Climate-Energy/REscale/News/helping-companies-accelerate-renewable-energy-procurement-in-India.
49. *See* RE100, *supra* note 34, at 22 (quoting Rakesh Bohra, a manager for Infosys in green initiatives, recommending that "a specific policy around corporate sourcing of renewables needs to be developed to persuade more corporates to invest").

Solar Hybrid Policy, presenting a model that few if any other national governments have developed.[50] The Hybrid Policy is based on a compelling premise: solar and wind resources are complementary to each other, and "superimposition of wind and solar resource maps shows that there are large areas where both wind and solar have high to moderate potential." The MNRE recognized that "hybridization" of wind and solar technologies offers two important benefits: (1) it can help in "minimizing the variability" of the intermittent renewable resources, thereby supporting grid stability; and (2) it will allow for more efficient use of existing transmission infrastructure as well as land, which is difficult to acquire for large projects without compromising other prime land uses.[51] The goal of the policy is to encourage new wind-solar hybrid plants as well as "hybridization of existing wind and solar plants."[52] A facility qualifies as a wind-solar "hybrid plant" if at least 25% of the power capacity comes from the other resource.[53]

The Hybrid Policy was amended in August 2018 to more clearly recognize the benefit of also incorporating energy storage capacity and clarify affirmatively that energy storage is encouraged under the policy.[54] In so doing, the MNRE is aligning the policy with the global growth trajectory for energy storage, which is expected to double six times by 2030 worldwide.[55] Projections show 70% of energy storage capacity will be installed in eight countries: the United States, China, Japan, India, Germany, the United Kingdom, Australia, and South Korea.[56]

The Hybrid Policy does the initial work of situating wind-solar hybrid projects within existing regulatory frameworks, with guidance for development approaches. Although it is still too early to assess its efficacy, the Hybrid Policy is especially innovative from a land use perspective. Utility-scale renewable energy projects are difficult to site due to local environmental impacts and harmful effects that can be highly disruptive to local communities. This can occur if wetlands are filled, if forests are cleared, if agricultural lands are lost for the construction of a facility, or if local people are displaced to make space for the project.[57]

The Hybrid Policy promotes maximizing use of land that is already devoted to wind and solar, and sends a message to developers that the same is expected of future projects. More efficient use of land for renewable energy generation may reduce the number of new facilities needed. The Hybrid Policy, or a companion, could go further still to innovate energy policy if it were to directly address a priority of land types that should be avoided for new projects, such as productive agricultural lands and forests, and lands that should be considered first. Conflicts over land use are inevitable, which underscores the need for strong protections for local communities, public participation, and policy guidance to assist with site selections and conflict resolution.

Though the United States is much less densely populated and has expansive land area, conflicts between local communities and energy projects nonetheless regularly occur.[58] Siting power plants is a state and local concern in the United States, and the sensitivity and sophistication of siting policies ranges widely in the degree to which they guide site selection and community outreach. At the federal level, the U.S. Environmental Protection Agency established a program known as RE-Powering America's Land, focused on siting renewable energy facilities on landfills, mine sites, and other contaminated land parcels that have limited value for other uses.[59] As of late 2019, the program has identified 352 renewable energy installations on 329 such sites "with a cumulative installed capacity of 1,710.2 megawatts," mostly solar installations on former landfills.[60] If it were mandatory to prioritize these lands, then numbers would undoubtedly be larger still.

In India, with its dense population and high agricultural production, scaling up renewable energy to 175 gW will inevitably involve siting conflicts. Prioritizing land

50. Government of India, MNRE, National Wind-Solar Hybrid Policy, No. 238/78/2017-Wind (2018) [hereinafter India-MNRE, Hybrid Policy], https://mnre.gov.in/img/documents/uploads/2775b59919174bb7aeb00bb1d5cd269c.pdf. *See also* Herman K. Trabish, *Utilities Take Note: Hybrid Renewable Projects Are Coming*, Util. Dive, Apr. 3, 2018, https://www.utilitydive.com/news/utilities-take-note-hybrid-renewables-projects-are-coming/520319/. Very recently, in the U.S. state of California, the state public utilities commission directed utilities and community choice aggregators in the state to procure clean energy capacity including from hybrid solar and storage systems. Iulia Gheorghiu, *California Proposes Extending 4.8 GW Gas Capacity as Bridge to 3.3 GW of New Clean Energy by 2023*, Util. Dive, Nov. 11, 2019, https://www.utilitydive.com/news/california-proposes-extending-48-gw-gas-capacity-as-bridge-to-33-gw-of-ne/567035/.
51. India-MNRE, Hybrid Policy, *supra* note 50, paras. 1.2-1.3.
52. *Id.* paras. 1.5, 2.1.
53. *Id.* para. 4.3.
54. Government of India, MNRE, Amendment in National Wind-Solar Hybrid Policy, No. 238/78/2017-Wind (2018), https://mnre.gov.in/img/documents/uploads/41e72559eb1140d18ad1a082ec050426.pdf.
55. Michelle Froese, *Global Storage Market to Double Six Times by 2030, Says BNEF*, Windpower Engineering & Dev., Nov. 20, 2017, https://www.windpowerengineering.com/global-storage-market-double-six-times-2030-says-bnef/ (citing Bloomberg New Energy Finance, Energy Storage Forecast 2017-2030 (2017), available by subscription).
56. *Id.*
57. *See*, *e.g.*, Radhika Shah & Phil Bloomer, *Respecting the Rights of Indigenous Peoples as Renewable Energy Grows*, Stan. Soc. Innovation Rev., Apr. 23, 2018, https://ssir.org/articles/entry/respecting_the_rights_of_indigenous_peoples_as_renewable_energy_grows (offering recommendations for renewable energy developers and investors to promote projects consistent with "robust human rights due diligence"); Shilpi Kapur Bakshi, *Renewable Energy, a Land Guzzler*, Hindu BusinessLine, Mar. 9, 2018 (on land scarcity and calling for "identification of wasteland for projects while mapping the renewable energy potential over different regions"). *See also* Kanchi Kohli et al., Centre for Policy Research-Namati Environmental Justice Program, Midcourse Manoeuvres: Community Strategies and Remedies for Natural Resource Conflicts in India (2018), *available at* https://www.business-humanrights.org/sites/default/files/documents/India.pdf (addressing land use conflicts including but not limited to energy infrastructure siting).
58. Interested readers may see my prior work on this: Uma Outka, *Environmental Justice in the Renewable Energy Transition*, 19 J. Envtl. & Sustainability L. 60 (2012); Uma Outka, *The Renewable Energy Footprint*, 30 Stan. Envtl. L.J. 241 (2011).
59. U.S. Environmental Protection Agency, *RE-Powering America's Land*, https://www.epa.gov/re-powering (last updated Apr. 20, 2020) (providing guidance for developers and local governments in determining feasibility of land reuse for renewable energy projects).
60. U.S. Environmental Protection Agency, RE-Powering America's Land Initiative: Tracking Completed Projects on Contaminated Lands, Landfills, and Mine Sites (2019), *available at* https://www.epa.gov/sites/production/files/2019-10/documents/re_tracking_matrix_final_508_100219.pdf.

may be complicated by the particular historical development of land rights in India. For example, the classification of "wastelands," which would seem to most closely compare with the lands identified in the RE-Powering Initiative, is contested due to the common use rights that apply on those lands. A recent report of the Centre for Policy Research (CPR)-Namati Environmental Justice Program in New Delhi explains that these land areas often have value to local communities that are not recognized by governmental agencies.[61] Although there is presently no official system for tracking land use change for energy infrastructure, the CPR-Namati Environmental Justice Program studied environmental clearances for major infrastructure projects across India and identified three broad categories of impacts in India from rural landscape transformation for infrastructure and industry: (1) displacement of individuals or communities, with meager or no compensation; (2) dispossession or loss of access to lands essential to local livelihoods; and (3) increased pollution or other environmental degradation that affects local people's economic, health, and social well-being.[62]

Indian law now requires a social impact assessment to weigh local impacts against a project's benefits under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Act 2013, and although a full discussion of land use conflicts is beyond the scope of this Comment, integrating land use issues at the earliest stages of a renewable energy project's site selection and approval process is key to meaningful consideration of local impacts.[63] The Hybrid Policy, with its partial focus on land efficiency, may be a vehicle for developing reinforcing land use protections, building on the general provisions of law in ways particular to the renewable energy industry, and consistent with respect for local communities and the local environment.

IV. Conclusion

It has now been over four years since the signing of the historic Paris Agreement. According to the International Renewable Energy Agency, the current pace of development "needs to be scaled up at least six times faster for the world to start to meet the goals set out in the Paris Agreement."[64]

While other major emitters continue to lag in climate ambition, most notably the United States at the federal level, India remains officially committed to its energy transition plans.[65] India's National Electricity Plan, finalized in April 2018, reinforces the commitments set forth in the NDC and, according to the Climate Action Tracker, could lead India to achieve its goals sooner than expected if duly carried out.[66] Indeed, although the NDC is currently rated "2°C compatible," they project "India could become a global climate leader with '1.5°C compatible' rating if it continues to abandon plans to build new coal-fired power plants."[67]

Whether India will take such a leadership step in the coming years remains unknown, of course, and in light of the recent COVID-19 crisis, the energy industry globally is in turmoil, like much of the rest of the global economy. In India, COVID-19 has already resulted in disruptions affecting the pace of solar energy development.[68] Still, according to International Energy Agency (IEA) reporting in April 2020, while coal and oil were experiencing significant drops in demand, "[r]enewables were the only source that posted a growth in demand, driven by larger installed capacity and priority dispatch."[69] Following India's nationwide lockdown in response to COVID-19, the IEA tracks a sharp drop in coal-fired generation, "bringing the shares of renewables and coal" in India's electricity generation "as close as they have ever been."[70]

In closing, although this Comment has focused on utility-scale renewables and examples pertaining to their role in the energy system transition, it is important to note there are at least two other critical transition elements relevant to the electric grid—distributed generation and energy efficiency. Progress is needed, and is underway, to advance distributed generation of renewable energy as a complementary technology for reorienting the electricity sector from overreliance on centralized large-scale power plants. India has emphasized distributed renewable energy, such as rooftop or small-scale solar, for its potential to expand energy access in rural

61. *See* Kohli et al., *supra* note 57, at 9-13 (discussing the history of this land category in India's legal system for land governance).
62. *See id*. at 21-37 (noting authors' attempts "to access government records that would indicate the extent of recorded land use change across various development sectors such as infrastructure, energy, irrigation and transport," but that "no such records were available" and presenting results of the organization's own review of environmental clearances); *id*. at 38-44 (detailing the impacts on local communities).
63. *Id*. at 16, 38 (discussing the Act). For more on conflicts arising out of land use change in India, including reference to other recent studies of the issue, see *id*. at 45-51. The world's largest hybrid renewables project was in development in Andhra Pradesh, with international headlines featuring the planned 160-MW facility to comprise 120 MW solar and 40 MW wind capacity. *See* Smiti, *India Plan's World's Largest Solar-Wind Hybrid Power Project*, CleanTechnica, Dec. 14, 2017, https://cleantechnica.com/2017/12/14/india-plans-worlds-largest-solar-wind-hybrid-power-project/. A state-level policy reversal threatens these advances, however. *See* Shaurya Bajaj, *Andhra Pradesh Amends Its Solar, Wind, and Hybrid Policy—Pulls Back Incentives*, MercomIndia, Nov. 20, 2019, https://mercomindia.com/andhra-pradesh-solar-wind-hybrid-policy/.
64. International Renewable Energy Agency, *supra* note 29, at 8.
65. Although the U.S. federal government has withdrawn from the Paris Agreement, many states and cities have declared "we're still in" and continue to advance low-carbon energy policies within their jurisdictions. For example, of the 50 states, 29 states have renewable energy mandates, and eight have set renewable energy goals. Standout states with a 100% mandate include Hawaii, California, Maine, Washington, Nevada, and New Mexico, and the number of high-ambition states within the United States continues to grow. *See* NC Clean Energy Technology Center Database of State Incentives for Renewables and Efficiency, Renewable & Clean Energy Standards (2019), https://s3.amazonaws.com/ncsolarcen-prod/wp-content/uploads/2019/07/RPS-CES-June2019.pdf.
66. Climate Action Tracker, *India*, https://climateactiontracker.org/countries/india/ (last visited Apr. 24, 2020).
67. *Id.*
68. *See, e.g.*, GlobalData Energy, *3GW of Renewable Energy Installations in India Expected to be Impacted by Covid-19*, Power Tech. (Apr. 1, 2020), https://www.power-technology.com/comment/renewable-energy-installations-india-covid-19/.
69. IEA, Global Energy Review 2020, 3 (2020), https://www.iea.org/reports/global-energy-review-2020#.
70. *Id.* at 26.

areas, but there are also opportunities for significant expansion among industrial consumers.[71] Strong policies for expanding distributed generation serve the same land use efficiency goals as the Hybrid Policy: to encourage land use that is already developed to be optimally used for electricity generation.

Likewise, law and policy for energy efficiency has special potential in India, due to the dramatic increased urbanization that is expected in the coming decades, which will allow modern efficiency codes to be applied in new construction. The IEA projects India could avoid "almost half" of its annual electric power generation by raising its ambition for energy efficiency.[72] Efficiency is also well aligned with the land use goal of the Hybrid Policy, as effective energy-efficiency policy can reduce the need for new generation. Work in both these areas complement large-scale renewable energy development in all nations' transition to a modern, low-carbon electric grid.

71. For more on distributed generation and micro-grid energy systems potential in India, see, e.g., Bloomberg New Energy Finance, Accelerating India's Clean Energy Transition: The Future of Rooftop PV and Other Distributed Energy Markets in India (2017), *available at* https://data.bloomberglp.com/bnef/sites/14/2017/11/BNEF_Accelerating-Indias-Clean-Energy-Transition_Nov-2017.pdf; World Resources Institute, Impacts of Small-Scale Electricity Systems: A Study of Rural Communities in India and Nepal (2016), *available at* https://wriorg.s3.amazonaws.com/s3fs-public/Impacts_of_Small-Scale_Electricity_Systems.pdf. *See also* Ashok Thanikonda, *Special Economic Zones: An Opportunity to Double India's Onsite Solar Capacity*, World Resources Inst. India, Aug. 14, 2018, https://wri-india.org/blog/special-economic-zones-opportunity-double-india's-onsite-solar-capacity (detailing how "industrial agglomerations" could drive rapid distributed generation growth).

72. IEA, India 2020 Energy Policy Review 16 (2020), *available at* https://www.iea.org/reports/india-2020.

ARTICLES

BEHIND THE CURTAIN: INSIDERS' VIEW OF DEVELOPING AND ENFORCING STATE CLIMATE CHANGE LAWS

by Sue Reid and Jennifer K. Rushlow

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SUMMARY

This Article highlights the role of advocates in pushing government to step up to the challenges of reducing greenhouse gas (GHG) emissions and remaining steadfast through continued policy enforcement. The authors, who participated in the development of the Massachusetts Global Warming Solutions Act, provide insights regarding climate legislation, regulation, and litigation in a state committed to addressing climate change. They conclude by sharing lessons learned and recommendations for how state governments can shape future climate laws to take into account the necessary near-term and longer-term GHG emission reductions, and establish mandates that maximize enforceability.

The ever-escalating urgency of the climate crisis,[1] and the increasingly acute need to address both its diverse drivers and impacts, call for action at every conceivable level—including via individuals, the private sector, and policymakers. Particularly in light of recent, widespread attempted clean energy and climate policy rollbacks at the federal level in the United States, the role of individual states in addressing climate change has never been more important. For policymakers and advocates looking for state-based regulatory solutions, there is much to be learned from the groundbreaking efforts of the Commonwealth of Massachusetts, which adopted the Massachusetts Global Warming Solutions Act (GWSA) in 2008.[2]

To illuminate lessons learned and help facilitate robust action in other states, this Article explores the legislative history and enactment of the Massachusetts GWSA[3]; the

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1. Intergovernmental Panel on Climate Change, Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty (Valérie Masson-Delmotte et al. eds. 2018); U.S. Global Change Research Program, Fourth National Climate Assessment (2018).
2. The advocate authors in this Article offer their own perspective on these developments. A government perspective on this and other coincident statutes is discussed in an article written by Ken Kimmell and Laurie Burt, former regulators in Massachusetts: Laurie Burt & Ken Kimmel, *Massachusetts Takes on Climate Change*, 27 UCLA J. Envtl. L. & Pol'y 295 (2009).
3. Climate Protection and Green Economy Act, Mass. Gen. Laws ch. 21N (2020).

broad contours of successful litigation[4] to enforce one of its central rulemaking provisions—resulting in a Massachusetts Supreme Judicial Court (SJC) decision requiring implementation by Massachusetts authorities; highlights of ensuing regulatory proceedings; and an overview of follow-on litigation that resulted in another SJC decision[5] reinforcing the strength and reach of the law.

This Article is written in five parts. Part I describes the legislative process that led to the passage of the GWSA in Massachusetts. Part II describes a lawsuit filed against the state to enforce the provisions of the statute. Part III describes the regulatory process that followed the successful outcome of that lawsuit. Part IV discusses lessons learned from this process of legislation and enforcement, and provides recommendations for future state climate change policies to maximize enforceability and beneficial impact. Part V concludes.

I. The Legislation: Massachusetts GWSA Comes to Life

The Commonwealth of Massachusetts has long been on the front lines of climate change and climate action. As a low-lying coastal state on the north Atlantic, Massachusetts is particularly vulnerable to climate impacts such as sea-level rise. This part provides insight into the legislative process that resulted in adoption of the Massachusetts GWSA just as awareness of exposure to climate impacts was on the rise. We pay particular attention to unique and instructive parts of the legislative process that distinguish it from the typical legislative process, including the significant involvement of the executive branch of state government.

Vulnerability to climate impacts prompted Massachusetts to join with a dozen other states in taking legal action to spur the U.S. Environmental Protection Agency (EPA) to regulate greenhouse gas (GHG) emissions via the Clean Air Act (CAA).[6] This challenge ultimately led to the U.S. Supreme Court's seminal decision enshrined in *Massachusetts v. Environmental Protection Agency*,[7] finding that EPA has the authority to regulate carbon dioxide (CO_2) and other GHGs as pollutants under the CAA.

Even with its climate litigation success before the nation's highest court, the Commonwealth continues to have significant exposure to risks associated with climate impacts as well as substantial opportunities associated with advancing clean energy and other climate solutions. This vulnerability to climate change, as well as the Commonwealth's long-standing leadership on innovation and commitment to environmental protection, has provided a compelling foundation for state-based climate action.

Against this backdrop, the well-publicized, devastating effects of climate-fueled Hurricane Katrina in 2005 in Louisiana and environs, as well as former Vice President Al Gore's stirring global warming documentary, *An Inconvenient Truth*, prompted an influential state senator, Marc Pacheco, to participate in a Climate Reality Project training that was designed to foster and enable political leadership on climate action. The senator left the training motivated to prompt Massachusetts to take climate action at a speed and scale commensurate with the challenges and opportunities. As he recognized, his district in southeastern Massachusetts, including communities located directly on Buzzards Bay, is among those literally on the leading edge of exposure to climate-fueled sea-level rise, with much at stake.

In early 2007, Senator Pacheco called environmental advocates from two Boston-based nonprofit organizations, the Conservation Law Foundation (CLF) and Environment Massachusetts, into his office. He pledged to champion climate leadership, and called on the advocates to provide their best ideas immediately so that climate action legislation could be timely filed at the beginning of the new legislative session.[8]

At that time, Massachusetts already had a strong regulatory foundation for climate action. It was one of the first states in the nation to adopt a renewable portfolio standard (RPS) in 1997 to require electric utilities to supply a modest amount of renewable energy to Massachusetts customers as part of a comprehensive set of reforms to restructure and deregulate the electric power sector.[9] Massachusetts also had one of the strongest energy-efficiency programs in the nation, focused on both electric efficiency as well as oil and natural gas used for heating.[10] Massachusetts also had the Renewable Energy Trust Fund (RETF), leveraging income from a modest charge on customers' electric bills to invest in new clean energy projects.[11] When they were first adopted, the RPS, the efficiency programs, and the RETF had been principally intended to promote objectives other than addressing climate change (e.g., promoting diversification and resilience of energy supply while reducing environmental impacts),[12] but nonetheless, these programs have served a key role in incrementally decarbonizing the Commonwealth's electric power supply by promoting low and zero emissions renewable energy and by curbing energy demand.

Around this time, Massachusetts was welcoming new leadership into the gubernatorial office. In early 2007, one of the first acts of then-newly inaugurated Gov. Deval Patrick was to direct that Massachusetts join the Regional Greenhouse Gas Initiative (RGGI), a regional cap-and-trade system for reducing electric power plant GHG emissions across the Northeast. In his early days in office, Governor Patrick also signed Executive Order No. 494, Leading by

4. Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016).
5. New Eng. Power Generators Ass'n v. Department of Envtl. Prot., 480 Mass. 398, 399 (2018).
6. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
7. 549 U.S. 497, 37 ELR 20075 (2007).
8. Attendees at that meeting included author Sue Reid, then an advocate at CLF, and Frank Gorke, representing Environment Massachusetts.
9. Renewable Energy Portfolio Standard for Retail Electricity Suppliers, Mass. Gen. Laws ch. 25A, §11F (2020).
10. An Act Relative to Restructuring the Electric Utility Industry in the Commonwealth, Regulating the Provision of Electricity and Other Services, and Promoting Enhanced Consumer Protection Therein, 1997 Mass. Acts 164, §37 (amending Mass. Gen. Laws ch. 25 to add §19).
11. Massachusetts Renewable Energy Trust Fund, Mass. Gen. Laws ch. 23J, §9 (2020).
12. Section 1 of the Massachusetts Restructuring Act emphasizes that "affordability" was the central driver for reforming the electric utility sector.

Example—Clean Energy and Efficient Buildings, geared at promoting clean energy and addressing climate change across the executive branch of state government.[13] With these developments, it was becoming clear that climate and clean energy leadership was emerging at the highest levels of Massachusetts state government.

Notwithstanding these efforts, Massachusetts was missing a state law establishing a comprehensive framework for climate action across all sectors, including transportation, land use, and other major sources of GHG emissions. In addition, the state did not have a system for ensuring that it would actually reduce GHG emissions from electric power generation facilities located in Massachusetts rather than relying on other states' efforts through the use of credits or offsets in connection with the RGGI program. At that time, few states had yet incubated such a comprehensive framework. California was the clear leader, having just adopted the California Global Warming Solutions Act, A.B. 32, in 2006.[14] Meaningful implementation of A.B. 32 had not even begun. One obvious gap with California's A.B. 32 is that it did not set a longer-term target that could guide permitting, investment, and other decisionmaking around long-lived infrastructure,[15] but A.B. 32 did establish a comprehensive framework for the state to regulate and reduce GHG emissions, with clear implementation authority for state government agencies.[16]

The advocates from CLF and Environment Massachusetts thus worked with Senator Pacheco to use California's A.B. 32 as the model for draft legislation. The legislation that was filed, in short order, at once borrowed ruthlessly from the California law—even in name (i.e., an Act Relating to Global Warming Solutions)—while also building upon the California foundation, such as by adding a comprehensive 2050 GHG reduction target set at 80% below 1990 levels, consistent with then-current recommendations from the scientific community.

The bill thus was the first in the nation to lay out mandatory near- and long-term science-based targets for GHG reductions across all sectors. Once filed, it enjoyed immediate and enthusiastic support from many other legislative leaders, including Massachusetts House of Representatives member Frank Smizik, co-chair of the Joint Committee on Agriculture, Natural Resources, and the Environment. However, as with almost any bill filed for the first time, the fate of the Massachusetts GWSA bill was far from certain as it began to wend its way through the usual processes of committee hearings, amendments, and debate.

Grassroots activism in support of the bill ballooned over the ensuing year, with tens of thousands of supportive postcards, letters, and e-mails sent to state legislators across both the Senate and the House, with a particular focus on legislative leadership including Speaker of the House Salvatore DiMasi and Senate President Therese Murray. One of the highlights of this visible grassroots push was an Earth Day rally on the iconic Boston Common, a stone's throw from the gold-domed State House, complete with a gigantic inflated ball—perhaps 30 feet in diameter—emblazoned, so to speak, with an image of the earth on fire. The rally drew impassioned calls for favorable action on the GWSA bill from a range of advocates and legislative leaders alike.[17]

Behind the scenes, Senator Pacheco and environmental advocates—led by CLF and Environment Massachusetts, and ultimately joined by the Environmental League of Massachusetts, Mass Audubon, the Union of Concerned Scientists, Environmental Entrepreneurs, and many others—were engaged in dialogue with key Patrick Administration officials at the Executive Office of Energy and Environmental Affairs (EOEEA). EOEEA leaders expressed support for strong and comprehensive climate policy, but they wanted more flexibility than the draft bill afforded. The pending bill had included a GHG reduction target of 20% below 1990 levels by 2020, consistent with then-current recommendations from the scientific community, but EOEEA officials objected to such a firm target that was without precedent at the time. They quietly expressed concerns based on a lack of confidence in the feasibility of achieving reductions greater than 10% by 2020, and sought assurances around the achievability of deeper emission reductions.

These officials also expressed keen interest in indications of industry support for the legislation. The Administration, with Governor Patrick's visible leadership, had been staking out a position that a transition to a clean energy economy holds enormous economic and job-creation potential for Massachusetts, and administration officials wanted assurances that industry would support climate legislation as another tool to promote clean energy transition and its associated economic benefits. Environmental advocates worked to mobilize such support from business leaders, including via the efforts of the nonprofit organization Healthcare Without Harm, which worked to elevate supportive voices from the burgeoning health care sector that is a centerpiece of the Massachusetts economy. Clean energy investors and entrepreneurs also provided support at legislative hearings on Beacon Hill, underscoring the tremendous market-driving and economic development potential of a strong climate mandate.

Following protracted discussions, the EOEEA signaled that the Administration could get behind a bill that established a range for 2020 GHG emission reductions, from 10%-25% below 1990 levels, while sustaining a fixed 2050 target of 80% below 1990 levels. In light of the trajectory Massachusetts already was on in terms of GHG reductions, it appeared reasonably likely that a 25% reduction target could be set and achieved—an even more ambitious target than was proposed in the original bill. While the inclusion of a range, in lieu of a specific target, invoked uncertainty and brought some risk that an insufficiently ambitious

13. Leading by Example—Clean Energy and Efficient Buildings, Mass. Exec. Order No. 494 (1997).
14. California Global Warming Solutions Act of 2006, Cal. Health & Safety Code §25.5 (2006).
15. *Id.* §25.5 (2020) (since amended to set a more robust 2020 target as well as a 2050 target).
16. *Id.* (provided authority for the California Air Resources Board to adopt market-based compliance mechanisms).
17. Author Sue Reid's recollections and personal notes.

target might be set, the upside of the proposed range was that it presented an opportunity to make the case for—and secure—a stronger 2020 target. Legislative leaders, including Senator Pacheco and Representative Smizik, as well as environmental advocates, therefore expressed support for incorporating such a 2020 emissions limit range in the bill.

Providing significant momentum for the GHG reductions that would be required under the bill, the Massachusetts state legislature[18] adopted, and on July 2, 2008, Governor Patrick signed into law, a clean energy bill known as the Green Communities Act of 2008.[19] The Act included provisions that increased renewable energy targets, elevated energy efficiency to a clean energy resource of first recourse for utilities, required utilities to enter long-term contracts for renewable energy, set up a system for net metering small-scale renewable energy installations, and established incentive programs for cities and towns to become designated "green communities" that would promote clean energy deployment, clean transportation, and energy conservation.

Individually and collectively, these measures held tremendous potential for reducing GHG emissions in Massachusetts, thus creating an even stronger foundation for adoption of the Massachusetts GWSA. Likely due to its breadth, detail, and reach into highly regulated sectors such as electric utilities, the Green Communities Act legislation consumed the lion's share of stakeholder and legislator attention during the 2007-2008 Massachusetts legislative session when the GWSA bill also was pending. Ironically, the more expansive and arguably transformative GWSA bill drew far less attention and engagement throughout its concurrent legislative process.

With the usual July 31 deadline looming for the end of the formal legislative session in 2008, the GWSA bill passed both the House and Senate unanimously in the waning days of July 2008, and the final necessary procedural vote to adopt the Massachusetts GWSA was taken on the very last day of the session—July 31, 2008. The bill was signed into law by Governor Patrick on August 13, 2008, as the Climate Protection and Green Economy Act.[20] The governor concurrently signed into law the Green Jobs Act to create the Massachusetts Clean Energy Center (building from the foundation of the RETF), to foster clean energy innovation and support training a more robust clean energy work force in the Commonwealth.[21]

With the enactment of the Massachusetts GWSA, Massachusetts became one of the first states in the nation to establish a comprehensive framework for addressing GHG emissions pursuant to mandatory targets, with clear directives for agency action. Among other requirements, the GWSA directed the EOEEA to establish the 1990 baseline (based on an assessment of actual GHG emissions during that year), estimate 2020 emissions under a business-as-usual (BAU) scenario that would assume adoption of no new policies, and adopt the 2020 emissions limit by setting a specific target in the range of 10%-25% below 1990 levels.[22]

The EOEEA set to work—together with input from expert consultants, state agencies, and a broad range of stakeholders—to identify the 1990 baseline from which reductions would be measured and to estimate 2020 BAU emissions. The agency's estimate of 2020 BAU emissions, as well as its analysis of the feasibility of emission reductions, spurred a conclusion that the Commonwealth was well-situated to adopt the strongest emissions reduction target possible under the GWSA: a 25% reduction from 1990 levels by 2020. This target and its underlying rationale were memorialized in the Massachusetts Clean Energy and Climate Plan for 2020,[23] which the EOEEA released in December 2010.[24] The plan not only set the 2020 target, but also laid out opportunities for action across sectors to bring about the necessary GHG emission reductions. The EOEEA's plan was strikingly silent, however, with regard to critical regulatory measures that were required by the GWSA, as discussed below.

II. The Lawsuit: Compelling Enforcement of the GWSA

Though the EOEEA began some aspects of implementation of the GWSA, as described above, other aspects of implementation of the statute were notably absent. For instance, key to the GWSA's ultimate success in ensuring its GHG emission reductions mandate would be met was §3(d), a statutory provision requiring the Massachusetts Department of Environmental Protection (DEP) to promulgate regulations. When the deadline for these regulations came and went with no agency action, litigation ensued.

A. Seeking Agency Action

The key mechanism in the GWSA for ensuring that the Commonwealth will achieve the GHG limits established in the statute is the regulatory requirement set out in §3(d) of the statute. Section 3(d) requires the DEP, an agency housed in the EOEEA, to "promulgate regulations establishing a desired level of declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions." Further, the GWSA mandated a time line for these regulations: the statute required that the DEP promulgate these regulations by January 1, 2012, that they take effect on January 1, 2013, and expire on December 31, 2020.[25]

18. The Massachusetts state legislature is formally known as the "Massachusetts General Court," an unusual moniker given that it is the legislative, not judicial, branch of state government.
19. An Act Relative to Green Communities, 2008 Mass. Acts 169.
20. An Act Establishing the Global Warming Solutions Act, 2008 Mass. Acts 1154 (codified at Mass. Gen. Laws ch. 21N (2020)).
21. An Act Relative to Green Jobs in the Commonwealth, 2008 Mass. Acts 307.
22. Climate Protection and Green Economy Act, Mass. Gen. Laws ch. 21N, §3(a), (b) (2020).
23. EOEEA, Massachusetts Clean Energy and Climate Plan for 2020 (2010).
24. *Id.* at ES-7 (notably finding that "[t]he limit is at the high end of the range for 2020 authorized by GWSA, but the middle of the range of possible outcomes for the policies incorporated in this Plan").
25. An Act Establishing the Global Warming Solutions Act, 2008 Mass. Acts 298, §16. The real intended purpose of this 2020 sunset is not known to

Advocates wasted no time in seeking to enforce this provision. In November 2012, before the deadline for regulation promulgation under §3(d), several hundred Massachusetts youth submitted a petition for rulemaking asking the DEP to issue regulations as required by §3(d).[26] The DEP's response to this petition asserted that the agency fulfilled §3(d) through three sets of regulations: (1) sulfur hexafluoride (SF_6) regulations that set leakage rates for gas-insulated switchgear (GIS) equipment (310 Code of Massachusetts Regulations (CMR) 7.72); (2) low emission vehicle (LEV) regulations addressing automobile emissions (310 CMR 7.40); and (3) regulations codifying the Commonwealth's participation in the RGGI program (310 CMR 7.70).[27]

Coincident with the youth petition, CLF and other advocates approached DEP leadership about the asserted failure of the agency to promulgate regulations satisfying §3(d). The DEP maintained that the advocates' legal interpretation of §3(d) was incorrect (for reasons that were not articulated until the subsequent litigation), and that even if the advocates were correct, the DEP had promulgated three sets of regulations that satisfied the mandate.[28] After repeated attempts to informally work with the agency, advocates filed a complaint in Superior Court on August 11, 2014.[29] Keep in mind, the GWSA was passed and signed into law in 2008 during Governor Patrick's first term; he was in office through 2015, and therefore, oddly, it was his administration that took this position despite his apparent support for the bill when it became law.

There were several plaintiffs in the lawsuit, including four teenagers from Massachusetts who had participated in the 2012 youth petition for rulemaking. The teenagers were represented by attorneys Dylan Sanders and Phelps Turner of Sugarman, Rogers, Barshak, and Cohen PC, a boutique litigation law firm in Boston. CLF and Mass Energy Consumers Alliance (now Green Energy Consumers Alliance) were also plaintiffs, represented by a team of CLF attorneys led by one of the present authors, Jennifer Rushlow, and the Environmental Law Clinic at Columbia Law School, led by attorney Susan Kraham. The DEP was the sole defendant named in the lawsuit.[30]

Plaintiffs sought a declaratory judgment that the DEP violated the GWSA by failing to issue regulations compliant with §3(d), as well as the additional or alternative relief of a writ of mandamus compelling the DEP to issue regulations compliant with §3(d).[31]

B. *Arguments*

Two arguments were central to the litigation: (1) what the plain language of §3(d) of the GWSA required, and (2) whether the three sets of regulations put forward by the DEP satisfied §3(d) of the GWSA.[32]

1. Statutory Interpretation

Section 3(d) required the DEP to "promulgate regulations establishing a desired level of declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions."[33] Plaintiffs maintained a simple "plain language" argument that §3(d) mandates the DEP to promulgate new regulations that place an annually declining cap on the collective emissions of the regulated groups of sources.[34]

Prior to filing its Opposition to Plaintiffs' Motion for Judgment on the Pleadings in Superior Court, the DEP had not publicly shared the agency's interpretation of §3(d). The DEP had made clear that it did not agree with the plaintiffs' reading of §3(d) and what actions that interpretation would require of the DEP, but never publicly disclosed what the agency *did* think §3(d) meant.

In its November 2014 brief, the DEP finally stated its position on how to interpret §3(d). The agency claimed that the statute's use of the phrase "desired level" indicated that the legislature did not intend to require the DEP to set "actual, enforceable limits, but only regulations that establish 'a desired level of declining . . . emission limits,' i.e., emission-reduction targets."[35] In support of this claim, the DEP pointed to the statute's sunset provision requiring the regulations promulgated pursuant to §3(d) to expire in 2020[36]:

> As of 2020, interim emission-reduction targets have served their sole purpose, and so it is understandable that they would expire. The same cannot be said of actual emission limits. As previously noted, it would, in fact, jeopardize the progress made in reducing GHG emissions as of 2020 if previously applicable emissions limits were

the authors. Some theorize that the legislators responsible for the final text intended for new regulations to be promulgated for the years following 2020, and certainly that would be permitted and advisable. Others assume that the 2020 sunset was a concession legislators made to appease concern from the executive branch over what might be viewed as burdensome regulatory requirements.

26. Petition from Eshe Sherley et al. to DEP for Promulgation of a Rule to Strictly Limit and Regulate Fossil Fuel Carbon Dioxide Emissions and to Establish an Effective Annual Emissions Reduction Strategy That Will Achieve Massachusetts' Statutory Obligations (Nov. 1, 2012), https://static1.squarespace.com/static/571d109b04426270152febe0/t/57609324356fb0f59a89b317/1465946918296/2012.10.31-FINAL+MA+Petition_0.pdf; Letter from Sue Reid, Vice President and Director, CLF et al., to Kenneth Kimmell, Commissioner, DEP (June 13, 2013), re: Kids v. Global Warming Rulemaking Petition to MassDEP, https://static1.squarespace.com/static/571d109b04426270152febe0/t/5760919920c6470aeb44fe80/1465946521659/OrgLtr-DEP.pdf.
27. DEP, The Massachusetts Department of Environmental Protection's Action on the *Kids vs. Global Warming Petition*, https://static1.squarespace.com/static/571d109b04426270152febe0/t/57609155c6fc08526047381b/1465946454076/MassDEPDecision.pdf.
28. In person meetings between CLF and DEP staff, attended by one of the authors (Sue Reid).
29. Complaint, Kain v. Department of Envtl. Prot., 32 Mass. L. Rptr. 668, 45 ELR 20058 (Super. Ct. 2015) (No. 14-2551), 2014 WL 3924998.
30. *Id.*
31. *Id.*
32. *Id.*
33. Climate Protection and Green Economy Act, Mass. Gen. Laws ch. 21N (2020).
34. Complaint, Kain v. Department of Envtl. Prot., 32 Mass. L. Rptr. 668, 45 ELR 20058 (Super. Ct. 2015) (No. 14-2551).
35. Brief of Defendant Massachusetts DEP at 40-41, Kain v. Department of Envtl. Prot., 32 Mass. L. Rptr. 668, 45 ELR 20058 (Super. Ct. 2015) (No. 14-02551-C).
36. *Id.*

to expire that year. Therefore, that cannot have been the Legislature's intent.[37]

The DEP also argued that the inclusion of the phrase "desired level" in §3(d) distinguished it from other sections of the GWSA that actually did establish limits, for example §3(d): "The [S]ecretary shall . . . adopt the following statewide greenhouse gas emissions limits . . . " and §4(a): "The secretary shall adopt the 2020 statewide greenhouse gas emissions limits pursuant to subsection (b) of §3 which shall be between 10 percent and 25 percent below the 1990 emissions level."[38] Finally, the DEP argued that the legislative history demonstrated that the legislature did not intend §3(d) to require actual emission limits on the basis that earlier versions of the bill used the word "target" rather than the word "limit."[39]

Plaintiffs found this interpretation of the statute to be rather tortured, perhaps explaining why the agency had not offered this interpretation earlier. In response, plaintiffs asserted that the phrase "desired level" "refers to the specific declining annual aggregate amount in GHG emissions that are to be set by the regulations the DEP must promulgate, with the purpose of complying with the Secretary's determination that the Commonwealth must reach a 2020 emissions limit that is 25 per cent below the 1990 baseline."[40] In response to the DEP's legislative history argument, plaintiffs asserted that the legislative history demonstrated that the "GWSA's drafters understood the difference between the meaning of the terms 'limit' and 'target,' and they would have used the word 'target' in the enacted §3(d) if they so intended. Further, when §3 was enacted, the term 'target' dropped out altogether, in favor of the term 'limit.'"[41] Finally, plaintiffs argued that because the DEP's legal interpretation of §3(d) was incorrect, it was not entitled to deference.[42]

2. The DEP's Regulations

The DEP relied on the same three sets of regulations in litigation as it did in its response to the youth's petition for rulemaking: SF_6 regulations, the LEV program, and the RGGI program. The DEP argued that these three sets of regulations apply declining emission limits to regulated sources and therefore establish "declining annual aggregate emissions limits for sources" of GHG emissions.[43]

- ❑ *SF_6 regulations*. The SF_6 regulations apply to GIS equipment, which is used in utility-owned electricity distribution systems.[44] SF_6 gas is used to safely control currents in such situations as de-energizing electric systems during maintenance work. The regulations establish maximum SF_6 emission leakage rates for utilities required to report to EPA.[45] The leakage rates decline over time, starting at 3.5% in 2015 and declining to 1% in 2020.[46] The SF_6 regulations were adopted in April 2014.[47] The SF_6 regulations do not cite the GWSA for statutory authority, but rather cite three other statutes for authority (Massachusetts General Laws ch. 111 §142A-J, ch. 21C §§4 and 6, ch. 21E §6).[48]

- ❑ *LEV program*. The LEV program requires that cars produced in the identified model years must have advanced emission controls to be sold in Massachusetts.[49] The emissions standard established in the LEV regulations is a fleetwide, sales-weighted emissions average of all cars sold by a manufacturer in Massachusetts. The emissions standard is tied to the car's size. A car that surpasses the emissions standard for its size earns credits that can be applied to other vehicles of the same or different size. Therefore, more-efficient cars allow for sales of less-efficient cars—it is the fleetwide average emissions that matters for regulatory compliance under the LEV program.

  Massachusetts adopted the LEV program under the CAA provision allowing states to follow California's vehicle emission standards instead of the less stringent federal standards.[50] Massachusetts first promulgated regulations adopting the California standards in 1990, and must periodically amend those regulations in order to stay in lockstep with California's LEV program and thereby remain in compliance with the CAA. The DEP relied on amendments to the LEV program that were promulgated in December 2012 in its argument for compliance with §3(d) of the GWSA.[51] The 2012 amendments relied on two sources for statutory authority: 42 U.S.C. §7507 and the GWSA generally, not §3(d) in particular.[52]

- ❑ *RGGI program*. The RGGI program is a regional program that uses market tools to reduce GHG emissions. Ten states currently participate in this cooperative interstate agreement: Connecticut, Delaware, Maine, Maryland, Massachusetts, New

37. *Id.*
38. *Id.*
39. *Id.*
40. Brief of Appellants/Plaintiffs Isabel Kain, Shamus Miller, James Coakley, Olivia Gieger, CLF, and Mass Energy Consumers Alliance at 14, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961), 2015 WL 9705287.
41. *Id.*
42. *Id.*
43. Brief of Defendant-Appellee Massachusetts DEP at 41, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961), 2015 WL 8546978.
44. 310 Mass. Code Regs. 7.72 (2019).
45. *Id.*
46. *Id.*
47. *Id.*
48. *Id.*
49. *Id.* 7.40.
50. 42 U.S.C. §7507.
51. Brief of the Defendant-Appellee Massachusetts DEP at 41, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961), 2015 WL 8546978.
52. 310 Mass. Code Regs. 7.40 (2012).

Hampshire, New Jersey, New York, Rhode Island, and Vermont.[53] The RGGI program establishes a regional cap for emissions from power plants that have a capacity of 25 megawatts or larger in participating states.[54] The program issues a limited number of CO_2 allowances, and power plants in each state buy allowances through this regional pool.[55]

Massachusetts has its own "base budget" for allowances under the RGGI program, as well as a cost-containment reserve.[56] While power plants may purchase allowances from Massachusetts, they may also purchase allowances from other states.[57] For instance, if the Massachusetts state budget for allowances was already expended, a Massachusetts power plant could continue its emissions as long as it could purchase allowances from some other participating state's allowance budget.

In this way, the RGGI program caps regional emissions, but not emissions for individual participating states. Massachusetts first agreed to implement the RGGI program by signing a memorandum of understanding with other participating states in 2005.[58] The first RGGI regulations in Massachusetts were promulgated in January 2008, several months before the GWSA became law in August 2008.[59] The DEP relied on the 2013 RGGI amendments (310 CMR 7.70) in its argument that the Massachusetts RGGI regulations satisfy the GWSA §3(d) regulatory requirement.[60] The amended regulations cite Massachusetts General Laws ch. 111 §142A-J and §2(a) of the GWSA (a GHG registry provision) for statutory authority.[61]

C. *Plaintiffs' Regulatory Arguments*

The plaintiffs found themselves in a challenging position responding to these regulatory arguments. The three sets of regulations put forward by the DEP were good regulations that made helpful progress on climate change. In fact, CLF and other environmental advocates had been among those urging the agency to promulgate those regulations because of their positive environmental impacts. Maintaining clear support for RGGI as a successful regional program was particularly important; environmental advocates (including CLF) had fought extremely hard to get this policy established, and advocates were very concerned that this litigation might make the RGGI program look insufficient or otherwise inadequate for fully addressing climate pollution. While the plaintiffs took the position that those regulations did not comply with §3(d) of the GWSA specifically, they did not want to give the impression that these were not otherwise important environmental regulations that should remain in force.

Ultimately, plaintiffs relied on several arguments against the DEP's assertion that the SF_6, LEV, and RGGI regulations satisfied the language of §3(d). First, the utilization of a rate structure in the SF_6 and LEV regulations prevented them from capping emissions.[62] Second, RGGI's regional nature prevents the program from capping emissions in Massachusetts, as required by §3(d).[63] Third, the statutory authority cited for each of these three sets of regulations excludes any reference to §3(d) of the GWSA.

1. Rate-Based Regulations

Both the SF_6 and LEV regulations utilize rates to curb GHG emissions. The SF_6 regulations utilize a rate of total pounds of SF_6 leaked by equipment in one year divided by the total capacity of GIS equipment at a regulated facility (e.g., SF_6 leaked/capacity).[64] The LEV regulations utilize a rate for total vehicle emissions of a fleet divided by the number of cars in the fleet (e.g., total emissions/total cars).[65]

Plaintiffs argued that while rates increase the efficiency of individual sources, they do not cap aggregate emissions from a group of sources.[66] For instance, you could require each facility regulated under the SF_6 regulations to cut SF_6 emissions in half, but if the number of regulated facilities tripled, the aggregate SF_6 emissions would increase. Similarly, because of the rate structure in the LEV program, a fleet of two cars could have the same emissions average as a fleet of 10 cars, but the 10-car fleet would have five times more aggregate emissions. In each scenario, by failing to cap the denominator in the rate, the rate-based regulations would have failed to limit aggregate emissions from the group of regulated sources. In contrast, a mass-based regulation would cap aggregate emissions or all regulated sources, regardless of the number of sources.

Because rate-based regulations are susceptible to outside factors, like industry growth, they do not function as

53. RGGI, *Elements of RGGI*, https://www.rggi.org/program-overview-and-design/elements (last visited Apr. 15, 2020). Though one of the original participant states, New Jersey, was not a participant at the time of the GWSA litigation.
54. *Id.*
55. RGGI, *Allowance Distribution*, https://www.rggi.org/allowance-tracking/allowance-distribution (last visited Apr. 15, 2020).
56. 310 Mass. Code Regs. 7.70(5)(a) (2019); *id.* 7.70(5)(c)(3).
57. RGGI, CO_2 Allowance Auctions Frequently Asked Questions (2020), *available at* https://www.rggi.org/sites/default/files/Uploads/Auction-Materials/48/FAQs_Apr_7_2020.pdf.
58. RGGI Memorandum of Understanding (2005), https://www.rggi.org/sites/default/files/Uploads/Design-Archive/MOU/MOU_12_20_05.pdf.
59. 310 Mass. Code Regs. 7.70 (2008).
60. Brief of the Defendant-Appellee Massachusetts DEP at 41, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961).
61. 310 Mass. Code Regs. 7.70 (2013), *available at* https://www.mass.gov/media/7141/download.
62. Brief of Appellants/Plaintiffs Isabel Kain, Shamus Miller, James Coakley, Olivia Gieger, CLF, and Mass Energy Consumers Alliance at 14, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961).
63. *Id.*
64. 310 Mass. Code Regs. 7.72 (2020).
65. *Id.* 7.40.
66. Brief of Appellants/Plaintiffs Isabel Kain, Shamus Miller, James Coakley, Olivia Gieger, CLF, and Mass Energy Consumers Alliance at 14, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961).

a limit without a cap on capacity. As a result, though rate-based regulations could be beneficial under certain circumstances, plaintiffs argued that they cannot be relied upon to achieve the strict requirements of §3(d) of the GWSA.[67]

The DEP responded to this argument by contending that this reading of the statute yields an unworkable result where (1) no new sources can come online, and (2) emissions must be allocated among existing and future sources.[68] Plaintiffs responded that like many other "regulatory pollution diet regimes," §3(d) requires an annual ratcheting down of aggregate emissions.[69] Plaintiffs pointed to the Total Maximum Daily Load (TMDL) Program from the Clean Water Act (CWA)[70] as an example.[71] A TMDL establishes the maximum amount of a particular pollutant that a watershed can receive in order to comply with water quality standards. Individual point sources are required to obtain permits that include source-specific effluent limits. TMDLs include a "reserve capacity" that can be allocated to new or expanded sources. TMDLs also allow the use of offsets so that polluters can offset their discharges through mitigation measures that offset discharges into the watershed.[72]

2. Regional Program

Under the RGGI program, Massachusetts power plants buy allowances through a regional pool; if Massachusetts power plants want to emit more than the Massachusetts budget allows, they can purchase allowances at auction from other states. This is permitted because the RGGI program mandates a regional cap on emissions but does not cap emissions in any particular state.[73] For this reason, plaintiffs argued that though the RGGI program is a useful market tool regionally, it does not satisfy the requirements of §3(d), which require GHG reductions in Massachusetts.[74] Though the DEP disagreed in its briefs, the EOEEA admitted that the extent to which regional programs like RGGI "will specifically reduce emissions in Massachusetts is not known, since the programs are . . . regional in scope."[75]

3. Statutory Authority

In addition to these substantive arguments, plaintiffs also argued that it mattered that the SF_6, LEV, and RGGI regulations did not cite §3(d) of the GWSA for statutory authority.[76] Plaintiffs argued that if the DEP had meant these three sets of regulations to comply with §3(d), they were required to give the public the opportunity for notice and comment on the issue of §3(d) compliance.[77] This would have created an administrative record that would illuminate the specific issues related to §3(d) compliance. Because the three regulations did not cite §3(d) of the GWSA for statutory authority, there was nothing in the administrative record for the court to review on whether the regulations satisfied §3(d).

D. Trial Court

Judge Robert Gordon in the Suffolk Superior Court ruled against the plaintiffs, granting judgment on the pleadings in favor of the DEP. Judge Gordon reasoned that under either of the alleged interpretations of the statutory language, the regulations proffered by the DEP satisfied the requirements of §3(d).[78] His opinion further elaborated:

> The regulatory initiatives implemented by the DEP may or may not prove effective in reducing the emission of greenhouse gases at the levels and/or in the time frames contemplated by the GWSA. If such initiatives are not successful, however, it will not be because the Department flouted the statutory directives of §3(d) by failing to promulgate reasonable emissions regulations. And in that event, it will either be for the DEP to refine its greenhouse gas programs, or for the Legislature to draft a better law. It is not, however, for this Court to rewrite the statute that the plaintiffs wished the General Court had enacted, well-intentioned though such wishes might be.[79]

E. Appeals

The plaintiffs-appellants appealed the decision to the Massachusetts Court of Appeals, the mid-level appeals court in the Commonwealth.[80] In Massachusetts, appeals from the trial court would typically go to the appeals court next. However, in rare instances, a party will be granted the opportunity to bypass the appeals court and go straight to direct review by the SJC, the highest court in Massachusetts. Direct review was granted to the plaintiffs-appellants

67. *Id.*
68. Brief of the Defendant-Appellee Massachusetts DEP at 15-16, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961), 2015 WL 9705287.
69. Reply Brief of Appellants/Plaintiffs Isabel Kain, Shamus Miller, James Coakley, Olivia Gieger, CLF, and Mass Energy Consumers Alliance at 14, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961), 2015 WL 9705287.
70. 33 U.S.C. §§1251-1387, ELR Stat. FWPCA §§101-607.
71. Reply Brief of Appellants/Plaintiffs Isabel Kain, Shamus Miller, James Coakley, Olivia Gieger, CLF and Mass Energy Consumers Alliance at 14, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961).
72. *Id.* at 13 n.16.
73. RGGI, *Elements of RGGI*, *supra* note 53.
74. Complaint, Kain v. Department of Envtl. Prot., 32 Mass. L. Rptr. 668, 45 ELR 20058 (Super. Ct. 2015) (No. 14-2551), 2014 WL 3924998.
75. DEP, Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business as Usual Projection 6 (2009), https://www.mass.gov/files/documents/2016/08/or/1990-2020-final.pdf.
76. Plaintiffs' Brief in Support of Motion for Judgment on the Pleadings at 10 n.4, Kain v. Department of Envtl. Prot., 32 Mass. L. Rptr. 668, 45 ELR 20058 (Super. Ct. 2015) (No. 14-2551).
77. Plaintiffs' Oral Argument, Kain v. Department of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (2016) (No. SJC-11961), 2015 WL 9705287.
78. Kain v. Department of Envtl. Prot., 32 Mass. L. Rptr. 668, 671, 45 ELR 20058 (Super. Ct. 2015).
79. *Id.*
80. More information about the appeal is available through the court docket at http://ma-appellatecourts.org/display_docket.php?src=party&dno=SJC-11961.

in this case, bringing it directly to the SJC on an accelerated time line. The SJC heard arguments in January 2016.[81]

Four amicus curiae briefs addressing a range of issues were filed with the SJC in support of the plaintiffs-appellants.[82] The amici included an international environmental policy professor who was lead author on five Intergovernmental Panel on Climate Change (IPCC) reports; an international environmental law and administrative law professor; the town of Duxbury, a coastal town on Cape Cod Bay; Unitarian Universalist churches; a health care organization; small, community-led environmental justice organizations and other grassroots groups; renewable energy companies; architects; and a long list of environmental advocacy organizations, ranging from nationwide to townwide in scale. While there was a great deal of interest in the case from a variety of other interested parties, many would not consider participating as amici out of concern for risking relationships with colleagues working for the Commonwealth. Additionally, some advocates at other organizations opted out due to fear that they would be perceived as denigrating the three sets of environmental regulations discussed above if they supported the plaintiffs-appellees' position, particularly RGGI.

In a May 2016 opinion written by Justice Robert Cordy, the SJC reversed the judgment of the Superior Court in a sweeping victory for the plaintiffs-appellants. In the *Kain* decision, the court concluded:

> [T]he unambiguous language of §3(d) requires the department to promulgate regulations that establish volumetric limits on multiple greenhouse gas emissions sources, expressed in CO_2 equivalents, and that such limits must decline on an annual basis. We further conclude that the sulfur hexafluoride, RGGI, and LEV regulations fall short of complying with the requirements of §3(d), because they fail to ensure the type of mass-based reductions in greenhouse gases across the sources or categories of sources regulated under each of the programs, as intended by the Legislature.[83]

The court further noted that "[i]t is doubtful that the Legislature would require the promulgation of regulations had it only meant for the department to set aspirational targets, and if that was its intention, it could have used the word 'target' or 'goal,'"[84] and that the department's interpretation of §3(d) "would tend to undermine the act's central purpose of reducing emissions in the Commonwealth."[85]

The court agreed with the plaintiffs-appellants that "the imposition of declining rates falls short of complying with the requirement of §3(d) that regulated sources are subject to a source-wide volumetric cap on emissions. A rate, by nature of being a ratio, is different from a limit, which sets a value that cannot be exceeded."[86] Further,

> [t]o the extent that emissions limits may constrain new sources from coming online in the future, such a consequence is one of legislative making. We note, however, that existing regulatory schemes provide frameworks for how regulations can address future emissions from new or expanding sources while ensuring that over-all emissions limits decline.[87]

The court also concluded that "although the RGGI program and amendments thereto are very important to the over-all regional scheme of reducing CO_2 emissions, they do not qualify as a regulation under §3(d)."[88]

III. Post-*Kain* Regulations and Industry Litigation

The SJC's opinion in *Kain* was reported as a landmark, possibly historic, decision.[89] The *Boston Globe* characterized it as a "rebuff to the state" that unanimously affirmed a long-standing environmental position—that the GWSA created legally enforceable mandates that required state agencies to "enact specific policies to carry out the required emissions cuts."[90] The decision had an immediate impact.

Two weeks after the SJC issued its decision, the state Senate Committee on Global Warming and Climate Change chaired by Senator Pacheco held an oversight hearing. Notably, during the pendency of the *Kain* litigation, Democratic Governor Patrick's second term concluded, and a new governor, Republican Charlie Baker, was sworn into office in January 2015.[91] DEP Commissioner Martin Suuberg testified on behalf of the Baker Administration,[92] making one of its first—if not its first—official public statements on the decision. Unequivocally recognizing the validity of the SJC's decision and his department's obligation pursuant to it, Suuberg stated, "We recognize the court's decision and fully intend to comply with it[.]"[93]

81. An archived recording of the oral argument in this case is available online through Suffolk University Law School at https://boston.suffolk.edu/sjc/archive.php. To search for the recording, use docket number SJC-11961.
82. Brief for Professor David A. Wirth as Amicus Curiae Supporting Appellants, Kain v. Department of Envtl. Prot., 474 Mass. 278, 280, 46 ELR 20094 (2016) (No. 11961), 2015 WL 9484765; Brief for Clean Water Action et al. as Amici Curiae Supporting Appellants, Kain v. Department of Envtl. Prot., 474 Mass. 278, 280, 46 ELR 20094 (2016) (No. 11961), 2015 WL 9484766; Brief for Dr. William R. Moomaw et al. as Amici Curiae Supporting Appellants, Kain v. Department of Envtl. Prot., 474 Mass. 278, 280, 46 ELR 20094 (2016) (No. 11961), 2015 WL 9705287.
83. *Kain*, 474 Mass. at 280.
84. *Id.* at 288.
85. *Id.* at 287.
86. *Id.* at 294.
87. *Id.* at 295.
88. *Id.* at 296. Justice Cordy, who had served as chief legal counsel to Massachusetts Gov. William Weld earlier in his career, retired three months after the *Kain* decision was issued after 16 years as an associate justice of the SJC.
89. David Abel, *SJC Rules Mass. Failed to Issue Proper Regulations to Cut Emissions*, Boston Globe, May 18, 2016, https://www.bostonglobe.com/metro/2016/05/18/sjc-rules-that-state-failed-issue-proper-regulations-cut-emissions/N6rAAeeGAr4LrjqF8K71JJ/story.html.
90. *Id.*
91. Attorney General Martha Coakley was in office when the litigation started, and Attorney General Maura Healey inherited and continued the litigation when she assumed office in 2015.
92. Shira Schoenberg, *All Options—Including Carbon Fee—On the Table as Massachusetts Reacts to SJC Global Warming Ruling*, MassLive, Jan. 7, 2019, https://www.masslive.com/politics/2016/05/all_options_-_including_carbon.html.
93. *Id.*

In response to questions from Senator Pacheco and committee co-chair Senator Michael Barrett, Commissioner Suuberg announced that his department was considering all options and would hold meetings in the space of a few weeks to determine how his department would comply with the court's ruling.[94] Plaintiff-appellant CLF also testified. After discussing several potential areas where new or revised DEP regulations could be issued in order to comply with *Kain* and §3(d),[95] CLF's attorney responded to questions from Senators Pacheco and Barrett regarding the organization's understanding of the scope of the SJC decision, the legal enforceability of the GWSA going forward, and the scope of existing authority regarding the imposition of a carbon price.

In anticipation of the DEP's forthcoming rulemaking effort, Massachusetts environmental groups met regularly to discuss the court's order and develop their own list of potential policy responses. It soon became clear that *Kain* had introduced a new element into the equation: time.

The case had presented a narrow question to the SJC regarding the proper interpretation of §3(d) of the GWSA and the DEP's obligations under it, and the ruling was clear. Reading the section together with §16 of the session law that enacted it,[96] §3(d) clearly required the DEP to issue, by January 1, 2012, regulations designed to achieve the GWSA's initial 2020 emissions reduction mandate.[97] As a result, although the law gave the DEP and other state agencies wide authority to regulate GHG emissions as needed to achieve the law's ultimate 2050 mandate,[98] the SJC's order regarding §3(d) only required the state to issue regulations establishing declining annual emission limits sufficient to ensure the law's initial limit, a 25% reduction below 1990 levels by 2020, was met.

Given the timing of the court's decision, in May 2016, it presented a challenge for climate advocates and regulators alike. What policies could be successfully designed and implemented within a short time—perhaps six months to one year—that would be capable of achieving substantial emission reductions in, at most, three-and-a-half or four years' time?[99] Not just any policy or regulation would suffice. In responding to and ultimately rejecting the DEP's argument that the GWSA established only aspirational emissions reduction targets, the court explained that §3(d) rulemaking must effectively meet five criteria. The regulations must:

> [1] address multiple sources or categories of sources of emissions, [2] impose a limit on emissions that may be released, [3] limit the aggregate emissions released from each group of regulated sources or categories of sources, [4] set emissions limits for each year, and [5] set limits that decline on an annual basis.[100]

A. Concerns Raised Regarding Regional Action

The SJC decision also raised, for some,[101] a serious concern regarding the state's ability to use regional programs like RGGI to achieve its climate goals. In disagreeing with the DEP's contention that the RGGI program qualified as a §3(d) regulation, the court made two observations. First, at the time the GWSA was enacted, the RGGI program was already in place, accounting for some 18% of the GHG cuts in the state's "business as usual" emissions reduction projection.[102] Referenced elsewhere in the GWSA by name,[103] the RGGI program was already known to the legislature as a "preexisting mandate" that §3(d) was intended to supplement.[104] Second, because the RGGI program allowed power plants in Massachusetts to comply by purchasing available allowances from other RGGI states after the Commonwealth's own program budget for CO_2 allowances had been exhausted, the RGGI program itself does not "ensure mass-based reductions in CO_2 emissions from power plants in the Commonwealth" as the GWSA expressly requires.[105]

It was the latter observation that troubled certain commentators,[106] particularly given its accompanying footnote. In the note, the SJC explained that in rejecting the DEP's argument that the RGGI program qualified as a §3(d) regulation, it was also rejecting the department's argument "that regulations promulgated pursuant to §3(d) need not achieve greenhouse gas reductions specific to the Commonwealth, but may be regional in nature."[107] Such an argument, according to the court, was not only "inconsistent with the statute's central purpose of reducing

94. *Id.*
95. *Id.*
96. An Act Establishing the Global Warming Solutions Act, 2008 Mass. Acts 298, §16.
97. Kain v. Department of Envtl. Prot., 474 Mass. 278, 300, 46 ELR 20094 (2016) ("The purpose of [Massachusetts General Laws ch. 21N] is to attain actual, measurable, and permanent emissions reductions in the Commonwealth, and the Legislature included §3(d) in the statute to ensure that legally mandated reductions are realized by the 2020 deadline.").
98. *See*, *e.g.*, Mass. Gen. Laws ch. 21N, §6 (2008) (requiring the Commonwealth and its agencies to "promulgate regulations that reduce energy use, increase efficiency and encourage renewable sources of energy in the sectors of energy generation, buildings and transportation" in order to achieve GHG limits).
99. At least one initial estimate suggested that in the aggregate, the regulations would have to achieve just over three million metric tons of CO_2 equivalent of annual emission reductions by the end of 2020. Liz Stanton, *By the Numbers: The Massachusetts Kain Decision on Greenhouse Gas Reduction Targets*, Synapse Energy Econ., Aug. 2, 2016, https://www.synapse-energy.com/about-us/blog/numbers-massachusetts-kain-decision-greenhouse-gas-reduction-targets.
100. *Kain*, 474 Mass. at 292; *accord id.* at 280 ("For the reasons discussed herein, we conclude that the unambiguous language of [§3(d)] requires the department to promulgate regulations that establish volumetric limits on multiple greenhouse gas emissions sources, expressed in carbon dioxide equivalents, and that such limits must decline on an annual basis.").
101. *See*, *e.g.*, Ron Gerwatowski, *SJC Decision Raises Emissions Questions*, CommonWealth Mag., June 15, 2016, https://commonwealthmagazine.org/environment/sjc-decision-raises-emissions-questions; *accord* Seth Jaffe, *The Global Warming Solutions Act Requires MassDEP to Promulgate Declining Annual GHG Emissions Limits for Multiple Sources: Yikes!*, Law & Env't, May 18, 2016, https://www.lawandenvironment.com/2016/05/18/the-global-warming-solutions-act-requires-massdep-to-promulgate-declining-annual-ghg-emissions-limits-for-multiple-sources-yikes.
102. *Kain*, 474 Mass. at 296-97.
103. Mass. Gen. Laws ch. 21N, §3(c) (2008).
104. *See Kain*, 474 Mass. at 296-97.
105. *Id.* at 297-98.
106. Gerwatowski, *supra* note 101.
107. *Kain*, 474 Mass. at 298 n.25.

emissions in the Commonwealth, but it also presumes the department has authority to promulgate regulations that have force outside the Commonwealth."[108]

That language led some to conclude that the court might, if asked, hold that the Commonwealth was unable to consider regional emissions or use regional regulations, which, if it were the case, would seriously undermine its ability to regulate electric-sector emissions,[109] given that Massachusetts typically imports more than 50% of its electricity from neighboring states and Canadian provinces.[110] The issue would become the centerpiece of the main legal challenge in late 2017 to the DEP's §3(d) rulemaking, discussed below.

B. Executive Order No. 569

The Commonwealth's formal response to the *Kain* decision came in the form of Executive Order No. 569, issued by Governor Baker on September 16, 2016,[111] four months after the court's ruling. Styled as establishing for Massachusetts an "integrated" approach to addressing climate change, Executive Order No. 569 addressed not only the reduction of GHG emissions including as required by §3(d) and the *Kain* case (i.e., climate mitigation), but also the future ability of the state to adapt to the "serious threats presented by climate change and associated extreme weather events" (i.e., climate adaptation).[112]

Regarding the former, Executive Order No. 569 committed the state to a significant amount of new activity. Governor Baker set deadlines for the EOEEA to establish interim statewide GHG emission limits for 2030 and 2040, as called for by the GWSA. He announced that Massachusetts would begin working on a regional strategy to reduce transportation-sector emissions "consistent with meeting the GWSA's 2050 and interim emissions limits," and called for publication (within two years) of a new "comprehensive energy plan" (to be published every five years thereafter) in addition to the state's existing GWSA-required Clean Energy and Climate Plan.[113] Responding directly to *Kain*,[114] the governor ordered the DEP to issue regulations required by §3(d) in just over one year.[115] In developing the regulations, the department was to

> consider limits on emissions from, among other sources or categories of sources, the following: (i) leaks from the natural gas distribution system; (ii) new, expanded, or renewed emissions permits or approvals; (iii) the transportation sector or subsets of the transportation sector, including the Commonwealth's vehicle fleet; and (iv) gas insulated switchgear[.][116]

Regarding climate adaptation, Executive Order No. 569 required the state to develop, for the first time (and also within two years), a "Climate Adaptation Plan" with the assistance of new "Climate Change Coordinators" in each executive secretariat.[117] Importantly, the order required that the new statewide adaptation plan incorporate "policies and strategies for ensuring that adaptation and resiliency efforts complement efforts to reduce greenhouse gas emissions and contribute towards the Commonwealth meeting the statewide emission limits established pursuant to the GWSA[.]"[118]

C. The DEP's Rulemaking

Early in November 2016, less than three months after Executive Order No. 569 was issued, the DEP initiated its §3(d) rulemaking by convening public stakeholder meetings in Boston and Worcester. In a series of short presentations, the DEP described in each meeting the department's understanding of its obligations under §3(d), as interpreted by the SJC, as well as Executive Order No. 569.[119] It also discussed its own GHG Emissions Inventory, a tool required by the GWSA,[120] to establish that, based on its latest full year of emissions data (2013), the state was required to reduce its annual rate of statewide GHG emissions by another 5.3% of 1990 emissions (or just over the equivalent of five million metric tons CO_2) in order to meet the 2020 emissions limit. Against that requirement, the DEP outlined seven existing, new, and amended regulations—two of which were not expressly "Section 3(d) regulations" (i.e., regulations that would establish enforceable, declining annual volumetric emission limits)—that it estimated

108. *Id.*

109. Gerwatowski, *supra* note 101:

> This was a startling conclusion—with significant implications for the wider electric sector. The court's decision leaves the distinct impression that regional emissions reductions occurring in locations physically located outside the borders of Massachusetts—even if caused by deliberate actions taken within the Commonwealth—cannot count toward emissions reductions under the GWSA.

accord Jaffe, *supra* note 101 ("But where does this leave MassDEP? In a deep hole, for sure. Unless it wants to ditch RGGI, it can't regulate power generation, because the type of program that the SJC said is required would simply be incompatible with RGGI.").

110. *See*, *e.g.*, U.S. Energy Information Administration, *Massachusetts Electricity Profile 2017*, https://www.eia.gov/electricity/state/massachusetts (last visited Apr. 15, 2020) (indicating total state generation of about 32,200,000 megawatt hours and approximately 52,500,000 megawatt hours of retail electricity sales).

111. Establishing an Integrated Climate Change Strategy for the Commonwealth, Mass. Exec. Order No. 569 (2016) [hereinafter Exec. Order No. 569].

112. *See id.*

113. *Id.* §1; Mass. Gen. Laws ch. 21N, §§3(b)(2)-(3) (2008) (interim limits), 4(h) (2008) (emissions reduction plan).

114. Exec. Order No. 569, *supra* note 111:

> WHEREAS, on May 17, 2016, the Supreme Judicial Court ruled that the steps mandated by the GWSA include promulgation of regulations by the Department of Environmental Protection "that establish volumetric limits on multiple greenhouse gas emissions sources, expressed in carbon dioxide equivalents, and that such limits must decline on an annual basis . . . ."

115. *Id.* §2.

116. *Id.*

117. *Id.* §§3-4.

118. *Id.* §3(1).

119. DEP, Stakeholder Discussion Slides, Remarks at the GWSA Regulations Stakeholder Meeting 3-5 (Oct. 28, 2016) (on file with authors).

120. Mass. Gen. Laws ch. 21N, §2(c) (2019). The state has to date revised its GHG Inventory annually. *See* DEP, *MassDEP Emissions Inventories*, https://www.mass.gov/lists/massdep-emissions-inventories#greenhouse-gas-baseline,-inventory-&-projection (last visited Apr. 15, 2020).

would achieve between a 7.3% and 8.2% reduction in statewide emissions as compared to the 1990 baseline.[121]

The DEP would revise, to include *Kain*-compliant declining volumetric limits, its existing regulation governing SF_6 emissions from GIS,[122] and its existing regulation limiting the aggregate GHG emissions of its sister agency, the Massachusetts Department of Transportation.[123] And it would issue four new regulations creating a new "clean energy standard" (CES) for retail electricity sellers (proposed 310 CMR 7.75, a non-§3(d) regulation), while capping CO_2 emissions on large, in-state electricity generators (proposed 310 CMR 7.74) and state executive-owned vehicle fleets (proposed 310 CMR 60.06), and capping methane emissions from the state's utility-controlled gas distribution system (proposed 310 CMR 7.73).

The DEP stated that it would, after additional public meetings, issue each new or amended regulation in mid-December 2016. All public hearings and the time for submission of public comment would conclude on February 24, 2017, with final regulations to issue no later than August 11, 2019, in accordance with Executive Order No. 569.

D. *Initial Critiques of the Proposed Rulemaking*

In response to its draft regulations, issued on December 16, 2016, the DEP received approximately 930 pages of public comments by the end of February 2017, filed by more than 150 separate entities including almost all of the Commonwealth's environmental nongovernmental organizations, commercial electricity generators, and municipal and investor-owned electric and gas utilities as well as a host of private citizens and local and state elected officials.[124] While we do not aim to provide a comprehensive summary of the comments, or the agency's response to them, the following four major lines of comment are worth mentioning.

At one end of the spectrum, some 24 of the state's more than 40 municipal electric and gas utilities challenged the DEP's statutory authority to regulate them at all. Known as "municipal light plants" or MLPs under state law, these town-owned and managed utilities asserted, in response to the DEP's inclusion of MLPs in its proposed new 310 CMR 7.75 CES, that the DEP lacked authority to regulate them at all under the GWSA. The legislature had expressly exempted MLPs from complying with the state's more than decade-old RPS and, according to the MLPs, the GWSA did not expressly state that it applied to MLPs.[125] These comments argued that, as a result, the DEP's inclusion of MLPs in its proposed CES was not only "misdirected and counterproductive," it was "contrary to law" such that it could not be sustained.[126]

At the other end of the spectrum, numerous commenters urged the DEP to use this rulemaking as an opportunity to regulate to the fullest extent of its delegated GWSA authority, targeting anticipated post-2020 emissions—particularly in the transportation sector[127]—rather than simply those that would ensure the state's 2020 limit was achieved.[128]

In the middle were commenters who critiqued the proposed regulations, arguing either that the DEP must do more or do less in order to stay within the confines of the *Kain* decision and the GWSA. Among those, two lines of comment stand out.

The first were the comments of CLF, which were closely scrutinized both by other environmental groups and by the DEP, given its central role in the *Kain* case.[129] CLF's comments focused on the DEP's emissions accounting, arguing that the proposed regulations must "address the significant, documented risk [in the state's latest Clean Energy and Climate Plan update] that the Commonwealth's 2020 emissions will exceed the equivalent of 70.8 million metric tons of CO_2" by as much as 5%, or about five million metric tons, and do so with publicly available, record evidence.[130] Sizing total rulemaking emission reductions to protect against that risk, CLF argued, was the only way the DEP's post-*Kain* effort could reasonably be held to "ensure that legally mandated reductions are realized by the 2020 deadline" as the SJC had ordered.[131] Pursuant to expert testimony filed with CLF's February 2017 comments, the environmental group argued that, as proposed by the DEP, the rulemaking could only meet that legal standard if the DEP tightened, or reduced, the proposed 310 CMR 7.74 in-state power plant emission caps for 2020 by about 1.6 million metric tons.[132]

The second were the comments filed by owners of most of the 23 large electric power-generating plants that the proposed rule would regulate. In individually filed comments and via comments filed by their regional trade association, the New England Power Generators Association (NEPGA), the power generators argued that the electricity

121. DEP, *supra* note 119, at 6-10 (In its presentation, DEP included just over 3% of 1990-level emissions reduction that it attributed to existing vehicle emission standards, which it was not planning, and did not amend. Massachusetts, together with 13 other states and the District of Columbia, has adopted California's low emission vehicle GHG emission regulations. *See* Massachusetts Clean Air Act, Mass. Gen. Laws ch. 111, §142K (2019).

122. 310 Mass. Code Regs. 7.72 (2014).

123. *Id.* 60.05.

124. The DEP also received some 645 individually signed comment letters in response to a form-letter campaign designed and executed by the Union of Concerned Scientists. Copies of the DEP's compilation of public comments, originally available on and downloaded from the DEP's website, are on file with the authors.

125. *See*, *e.g.*, Comments of Belmont Municipal Light Department et al. re: Proposed 310 CMR §7.75 "Clean Energy Standard" 3-5 (Feb. 24, 2017).

126. *Id.* at 5, 8.

127. The more than 600 individual comment letters orchestrated by the Union of Concerned Scientists urged the DEP to adopt "solutions like more efficient cars, electric vehicles, cleaner fuels, and a robust transportation system." *See*, *e.g.*, Letter from Neal Merbaum to DEP (Feb. 16, 2017).

128. *See*, *e.g.*, Environment Massachusetts, Testimony on Proposed Regulations Under the Global Warming Solutions Act 2 (Feb. 6, 2017) (urging adoption of mandates for all light-duty vehicles in the state to be zero emissions by 2020, and to achieve 100% renewable electricity by 2050).

129. Following the SJC decision, CLF led several meetings among Massachusetts environmental groups to discuss the scope of the decision and potential §3(d) regulations. Its attorneys also met on several occasions with regulators at the DEP.

130. CLF, Comments re: GWSA §3(d) Regulations 2-6 (Feb. 24, 2017).

131. *Id.*

132. *Id.* at 10-12.

sector could only be regulated pursuant to GWSA §3(c) authority, rather than pursuant to §3(d), and that, regardless, the proposed cap on in-state power plant emissions was bad—even potentially counterproductive and arbitrary—policy. According to NEPGA, pursuant to §3(c), "regulation of GHG emissions in the electric generation sector must be 'based on consumption and purchases of electricity from the regional electric grid, taking into account the regional greenhouse gas initiative[,]'" something NEPGA asserted the DEP could not do while fashioning declining annual emission limits pursuant to §3(d).[133]

The state's commercial power generators also warned that the proposed limit on in-state power plant emissions would be overwhelmed by "leakage," that is increased emissions from out-of-state power plants run to make up for reduced in-state production in the face of steady in-state electricity demand.[134] The likelihood of such leakage was, according to NEPGA, high enough as to be considered a logical necessity resulting from the regional grid operator's power plant dispatch procedures.[135]

As anticipated, and on schedule, the DEP issued its finalized new and amended regulations as required by §3(d) and *Kain* on August 11, 2017. Included with the regulations were approximately 200 pages of the DEP's responses to received public comments together with a 70-page study detailing the "Electricity Bill and CO_2 Emissions Impacts" of the new 310 CMR 7.74 and 7.75 regulations. A month later, NEPGA and two individual power plant owners filed suit in Superior Court challenging the rulemaking.[136]

E. NEPGA's Legal Challenge

The NEPGA complaint for declaratory relief attacked the in-state power plant emissions cap regulation, 310 CMR 7.74, repeating as allegations the same issues it had raised in its earlier public comments. In its first count, NEPGA claimed regulatory §7.74 was unlawful because the GWSA only gave the DEP authority to regulate the electricity sector pursuant to §3(c), not §3(d), of the statute. It also claimed the regulation was arbitrary and capricious because in practice, §7.74 would necessarily result in an increase, rather than a decrease, in GHG emissions.[137] In its second count, NEPGA argued that §7.74—which set annually declining emission limits for covered in-state power plants through 2050—was unlawful because the GWSA only gave authority to the DEP to promulgate regulations effective through December 31, 2020.[138]

As introduced above, the core of NEPGA's challenge mirrored elements of the discussion regarding the RGGI program in (and after) the *Kain* case. Both involved claims regarding the proper interpretation of §3(c), which expressly referenced the electricity sector and the RGGI program, and §3(d), which did not. Both also raised the issue of to what extent and how must Massachusetts account for, and potentially regulate, emissions associated with electricity generated out-of-state to serve in-state consumption.

Before the SJC,[139] NEPGA argued that in rejecting the DEP's claim that its RGGI regulations satisfied the requirement of §3(d),[140] the court in *Kain* had recognized §3(c) to be a limitation on the DEP's GWSA authority, ostensibly a legislative command that the DEP could only regulate the electricity sector pursuant to that subsection and no others.[141] According to NEPGA, that was a limitation the DEP could not avoid by simply issuing §7.74 pursuant to both §3(c) and §3(d).[142] Because the new regulation included declining annual emission limits emblematic of §3(d), it ran afoul of the legislature's command that the DEP "must treat the electricity sector differently."[143]

On the issue of out-of-state emissions related to in-state electricity consumption, NEPGA argued that, because of how the regional grid operator dispatches electric power, any state-specific restriction of power plant emissions must necessarily cause both Massachusetts' and regional emissions to increase. This was, according to NEPGA, "the precise result that RGGI and the GWSA are intended to avoid,"[144] making §7.74 "illegal and unenforceable."[145] For NEPGA, the two arguments were essentially flip sides of the same coin.

F. The SJC Upholds §7.74

In a unanimous decision,[146] the SJC rejected all of NEPGA's claims. Regarding the interaction of §§3(c) and 3(d), the court agreed with—and deferred to—the DEP's inter-

133. Seth Jaffe, NEPGA Comments on Proposed Regulations Under Global Warming Solutions Act §3(d), 310 CMR 7.74, at 12 (Feb. 24, 2017).
134. *Id.* at 14-16.
135. *Id.* at 9, 17.
136. *See* Suffolk County Superior Court Cases: Calpine Corp. v. Department of Envtl. Prot., No. 1784CV0291 (Mass. Super. Ct. 2017); New Eng. Power Generators Ass'n v. Department of Envtl. Prot., No. 1784CV02918 (Mass. Super. Ct. 2017). Power plant owner GenOn Energy, Inc. was a co-plaintiff in the latter case. Calpine's case did not progress after the parties reached an agreement with the DEP regarding the emission allocations given to its power plants in the new 310 CMR 7.74 regulation. On February 3, 2018, the case was stayed on the request of the parties pending the DEP's planned initial revision of the regulation in August 2018. The case was dismissed on August 7, 2018.
137. Complaint, New Eng. Power Generators Ass'n v. Department of Envtl. Prot., No. 1784CV02918, paras. 58-65 (Mass. Super. Ct. 2017).
138. *Id.* paras. 66-69.
139. At the time NEPGA filed its Superior Court complaint, three CLF appeals regarding unit-specific power plant emission caps imposed by the state were pending before the SJC. *See* SJC Case Nos. SJ-2016-0509; SJ-2017-0290; SJ-2017-0328. Pursuant to a motion by CLF to consolidate and stay those appeals pending the resolution of NEPGA's challenge, and subsequent agreement of the parties that NEPGA's case involved no disputed issues of fact, the SJC removed the NEPGA case from the Superior Court for its own immediate consideration after granting CLF's motion.
140. Kain v. Department of Envtl. Prot., 474 Mass. 278, 296-98, 46 ELR 20094 (2016).
141. Brief of Plaintiff-Appellant at 28-33, New Eng. Power Generators Ass'n v. Department of Envtl. Prot., 480 Mass. 398 (2018) (No. SJC-12477).
142. *Id.*
143. *Id.* at 33 (citing *Kain*, 474 Mass. at 297-98).
144. *Id.* at 37.
145. *Id.* at 33.
146. *See*, *e.g.*, *New Eng. Power Generators Ass'n*, 480 Mass. at 399 ("Its name bespeaks its ambitions. The Global Warming Solutions Act . . . is designed to make Massachusetts a national, and even international, leader in the efforts to reduce the greenhouse gas emissions that cause climate change. It thus establishes significant, 'ambitious,' legally binding, short- and long-term restrictions on those emissions.") (internal citation omitted); *id.* at 406 ("[The GWSA] is designed to go well beyond business as usual in terms of reducing emissions: to upend, rather than to uphold, the status quo.").

pretation that "although §3(c) sets out specific procedures and requirements for regulation of the electric sector, it does not prohibit the department from imposing a declining emissions cap on that sector pursuant to §3(d), as long as the limits satisfy the requirements of §3(c)."[147] There is "no express exclusion of the electric sector from §3(d)," the court explained, and the record made clear that the regulation of electricity-sector emissions was necessary "in order to achieve its goal of reducing emissions by at least eighty per cent by 2050."[148] More specifically, the court recognized that limits like those imposed by §7.74 were fully consistent with, rather than contrary to, its ruling in *Kain* because the RGGI program alone could not "ensure mass-based reductions in carbon dioxide emissions from power plants in the Commonwealth."[149]

Finding there were "multiple conceivable bases to support the rule," the court was similarly unconvinced by NEPGA's out-of-state emissions argument, which it characterized as being based on "the possibility that the [§7.74] may cause modest emissions leakage."[150] There was substantial evidence in the record that the rule would in fact "reduce emissions generated *within* the Commonwealth," from some 9.15 million metric tons in 2018 to just over 8.5 million metric tons in 2020.[151] And §7.74's impact "cannot be analyzed in a vacuum," as NEPGA's argument effectively required. Assessing §7.74 together with §7.75 and other state mandates for increasing levels of clean and renewable power, the DEP's analysis suggested that "little or no leakage will occur[ ] because it will be unnecessary to shift to out-of-State producers in order to comply with the [§7.74]."[152]

Finally, the court dismissed NEPGA's second claim—that the DEP's authority to issue regulations under §3(d) would expire at the end of 2020—with an expansive interpretation of the DEP's authority under the GWSA. Given the Act's purpose, that is "to ensure that the Commonwealth meets the 2050 Statewide emission limit of at least eighty per cent below the 1990 level," NEPGA's interpretation would "create an absurd result: a long-term 2050 Statewide emissions goal without, after December 31, 2020, any tools to reach it."[153] Thus, rather than limiting the DEP's regulatory authority, the law required the DEP "to promulgate new regulations at that time, based on updated information, to ensure that the future Statewide limits for 2030, 2040, and 2050 will be met."[154]

147. *Id.* at 404-05.
148. *Id.* at 405.
149. *Id.* at 406 (citing Kain v. Department of Envtl. Prot., 474 Mass. 278, 297-98, 46 ELR 20094 (2016)).
150. *Id.* at 408.
151. *Id.* at 408-09.
152. *Id.* at 409. In a footnote citing to clean energy requirements in neighboring Connecticut and Rhode Island, the court observed further that even "if the Cap Regulation imposes a constraint on in-State power plants, it is mere speculation [on NEPGA's part to assert] that out-of-State electric suppliers will necessarily generate higher rates of greenhouse gas emissions, especially given that other States have similarly committed to ambitious targets for reductions of greenhouse gas emissions." *Id.* at 410 n.14.
153. *Id.* at 411.
154. *Id.*

IV. Lessons Learned and Recommendations for Future Policies

In the decade since the GWSA was enacted, much has changed in the fight to mitigate GHG emissions and avoid irreversible damage to the climate. Much of that change is positive,[155] but the past decade has also seen major setbacks, with partisan rancor and division over climate change arguably at an all-time high, following the election of a president who has worked diligently to erase or reverse virtually all of his predecessor's climate mitigation policies.[156] Alarmingly, we find ourselves in a time when IPCC scientists have effectively declared a climate emergency, warning that unless dramatic and widespread emission reductions are achieved in the next 10 years, it may become physically impossible for the world community to avoid irreversible climate devastation.[157] Even with such dire projections, United Nations climate talks at the 25th Conference of Parties (COP25) fizzled out, and failed to result in agreement on key issues to meet the goals of the 2015 Paris Agreement.[158]

Particularly in that context, it is reasonable to ask what value the GWSA has had in Massachusetts and whether similar laws would be of value in other states. After all, a major enforcement action was required to activate the GWSA's express requirement for new emissions reduction regulations, and once issued, the state's initial GWSA regulations were subject to their own immediate legal challenge. Moreover, according to the state, a large portion of the state's emission reductions to date—perhaps as much as 60%[159]—have been driven either by federal programs

155. With increasing urgency, cities and states as well as major corporations across the country have committed to dramatically reducing their GHG emissions, *see* Bloomberg Philanthropies, Fulfilling America's Pledge (2018), https://www.bbhub.io/dotorg/sites/28/2018/09/Fulfilling-Americas-Pledge-2018.pdf, and in the service of that effort, to purchasing in increasing volumes clean and renewable energy, *see* Natural Resources Defense Council, City Climate Commitments, https://www.nrdc.org/sites/default/files/city-climate-commitments.pdf. And at the same time, driven both by those commitments and by technological development and innovation, the costs of renewable solar and wind generation and battery storage are approaching or have eclipsed market cost parity with traditional fossil fuel generation in markets around the world, making the goal of decarbonizing the economy appear increasingly more attainable. Lazard, Lazard's Levelized Cost of Energy Analysis—Version 12.0 (2018), https://www.lazard.com/media/450784/lazards-levelized-cost-of-energy-version-120-vfinal.pdf.
156. Livia Albeck-Ripka et al., *95 Environmental Rules Being Rolled Back Under Trump*, N.Y. Times, Dec. 21, 2019, https://www.nytimes.com/interactive/2019/climate/trump-environment-rollbacks.html.
157. *Summary for Policymakers*, *in* Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty (Valérie Masson-Delmotte et al. eds., Intergovernmental Panel on Climate Change 2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf.
158. Jocelyn Timperley, *COP25: What Was Achieved and Where to Next?*, Climate Home News, Dec. 16, 2019, https://www.climatechangenews.com/2019/12/16/cop25-achieved-next/.
159. EOEEA, Massachusetts Clean Energy and Climate Plan for 2020, 2015 Update (2015); EOEEA, Global Warming Solutions Act 10-Year Progress Report (2018) [hereinafter 10-Year Progress Report].

(mainly regarding auto emissions) or by major programs and policies that pre-dated the law.[160]

Our unequivocal response to that inquiry is that the GWSA has brought great value to Massachusetts, and we strongly recommend the adoption of similar enforceable emission reduction mandates in other states in New England and nationwide. Others can, and should—given the press of time—learn from the Massachusetts experience. Our involvement as advocates before, during, and after the *Kain* case lead us to make the following suggestions in that regard.

A. Mandate > Goal

Codified, enforceable emissions reduction mandates are crucial to achieving climate goals. This is true even where economic conditions are currently favorable, as the economy will undoubtedly change; forward-looking laws help ensure emission reductions and provide regulatory certainty, and, in theory, laws can plan ahead for economic fluctuations. Near-concurrent adoption of legislation fostering stepped-up clean energy deployment is significantly helpful to achieving GHG emission targets (e.g., elevated renewable energy and energy-efficiency programs and targets (via the Massachusetts Green Communities Act)). The changes to BAU that are required to reduce emissions can be challenging for some sectors, and thus we are convinced that anything short of mandatory reductions will not achieve the necessary emission reductions to avoid the worst effects of climate change.

The law has long been our primary tool to protect the public health and welfare, particularly in situations where individual or market action appears unlikely, insufficient, or incapable of providing such protection, or in situations such as national defense, where collective action is a legal or practical necessity. In this case, there is every indication that the deep decarbonization of our energy system is one of those situations. Moreover, there is evidence that laws like the GWSA in fact work.

With the GWSA framework and mandate in place, Massachusetts appears to have achieved essentially permanent reductions in its annual GHG emissions rate, from some 87.9 million metric tons of CO_2 equivalent in 2008 to 76.3 million metric tons of CO_2 equivalent in 2015—a 13% reduction. Critics of the Massachusetts GWSA claim that the majority of those emission reductions are due to a changing economy, not the statutory mandate. At least to some extent, this is a fair point; certainly the changing economy played a significant role in driving down emissions (e.g., market forces driving the rise of renewable energy and natural gas concurrent with closures of coal plants).

Nonetheless, evidence from related policy developments in other states does indicate that a statutory mandate is more effective in driving down emissions than a statutory goal. Take the example of Vermont: despite setting some of the nation's most aggressive emission reduction goals two years ahead of the enactment of Massachusetts' law, Vermont's emissions have returned to 2006 levels (after significant initial reductions—a 10% drop between 2006 and 2008) in the absence of legally enforceable emission mandates.[161] In addition, enforceable emissions reduction laws are likely necessary to visibly establish and assert state authority within various aspects of our federated structure.[162]

Mandatory laws can also be effective at helping to depoliticize climate mitigation efforts. By providing not only the necessary regulatory authority for enforceable implementation action, but also concrete targets and limits that guide and constrain state agencies, the GWSA and its date-specific emission limits have driven climate action in Democratic (Governor Patrick) and Republican (Governor Baker) administrations alike. Indeed, by requiring that GHG mitigation be made fully part of the regulatory process,[163] laws like the GWSA assure with some durability that climate mitigation will be integrated into critical state budgeting and related resourcing mechanisms as one of many "business as usual" state governmental responsibilities.

The Massachusetts GWSA's structure, as a policy that requires mandatory emission reductions, is therefore a valuable example for other states to consider following. We recommend that advocates and legislators in other states feel empowered both to copy the best of the Massachusetts GWSA and of California's Global Warming Solutions Act embodied in A.B. 32 (2006) and S.B. 32 (2016), while at the same time updating and improving on those statutory frameworks. Our recommendations for how other states might improve upon the Massachusetts GWSA in their own statutes are discussed more fully below.

B. Plan for Enforcement

Due to separation-of-powers requirements for public process in administrative decisions, and the often outsized influence of well-resourced private-sector interests in the United States, public policy decisionmaking is full of pragmatic compromise. This is particularly the case, we have observed, regarding climate policy. Despite the clear threats that climate change poses, as well as the widespread availability of cost-effective climate solutions, there are few truly easy answers given the transformations that deep cuts in emissions require—and politically sensitive trade

160. 10-Year Progress Report, *supra* note 159.

161. Vermont Department of Environmental Conservation, Vermont Greenhouse Gas Emissions Inventory Update: Brief, 1990-2015 (2018), https://dec.vermont.gov/sites/dec/files/aqc/climate-change/documents/_Vermont_Greenhouse_Gas_Emissions_Inventory_Update_1990-2015.pdf.

162. For example, to drive change regarding regional energy systems managed by Federal Energy Regulatory Commission-regulated regional transmission operator/independent system operator entities, and to motivate neighboring states to work together on regional solutions like the Transportation Climate Initiative.

163. *See*, *e.g.*, 2008 Mass. Acts 298, §7 (amending the state's Administrative Procedure Act to require state entities to consider "reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise" when "issuing permits, licenses and other administrative approvals and decisions").

offs abound. One critical factor is that the relative benefits and burdens of energy transition are not inherently evenly distributed. In Massachusetts, for example, although some 50,000 new clean energy jobs have been created statewide since 2010,[164] the closure of the state's fleet of coal-fired power plants has presented localized challenges in several legislative districts where those plants were located.

State climate law should be drafted to bring a diverse set of legal tools to bear, given the urgent action climate change science nevertheless demands. Regulations are typically easier to promulgate than statutes, but without clearly legislated requirements and time lines, they can fall prey to the normal vagaries of gubernatorial politics. It is not clear what drove Massachusetts' position in the *Kain* case, why the DEP failed to issue enforceable regulations pursuant to §3(d)'s plain requirement—but several possibilities exist. Despite signing the GWSA into law, the Patrick Administration may have initially hoped to rely on federal legislation, such as the Waxman-Markey bill,[165] as the main vehicle for compliance. Or perhaps the executive branch was reluctant to issue new, potentially controversial, state regulations that could be seen as contrary to a broader nonregulatory (or possibly antiregulatory) ethos with respect to environmental regulation.[166]

Our experience points to the value, then, of anticipating a dynamic political landscape when designing climate law. As discussed more below, we see benefit in clear, specific, and legally enforceable time lines and substantive requirements for implementing regulations. In particular, in anticipation of likely legal challenges like that presented in the *New England Power Generators Ass'n v. Department of Environmental Protection* case,[167] drafters should consider including an express statutory pathway for expedited judicial review.

Although none exists in the Massachusetts GWSA, such provisions exist in other statutes where the prospect of delay from litigation is undesirable and in conflict with broader statutory goals. For example, when Massachusetts restructured its electricity sector in the late 1990s to rely more heavily on private markets and commercial providers, all challenges to energy-related decisions by the Department of Public Utilities and the Energy Facilities Siting Board were made immediately and directly appealable to the SJC, skipping both the trial and appellate courts and going straight to the highest court.[168] This provision was incorporated to ensure adequate electricity availability and reliability—a broad goal of the statute.

Finally, the *Kain* case highlights the important role that nongovernmental advocates play in pushing state government through and past political impasse, suggesting special attention be given to expressly addressing and allowing judicial enforcement and/or third-party standing. In the *Kain* litigation, the plaintiffs argued that they were "directly affected" by noncompliance with §3(d), which supports standing for both mandamus and declaratory judgment actions. Massachusetts also affords third-party standing in environmental disputes, through a statutory citizen suit provision along the lines of the citizen suit provisions in some federal environmental statutes like the CWA and the CAA.[169] The Massachusetts statute provides that

> [t]he superior court for the county in which damage to the environment is occurring or is about to occur may, upon a civil action in which equitable or declaratory relief is sought in which not less than ten persons domiciled within the commonwealth are joined as plaintiffs, or upon such an action by any political subdivision of the commonwealth, determine whether such damage is occurring or is about to occur and may, before the final determination of the action, restrain the person causing or about to cause such damage; provided, however, that the damage caused or about to be caused by such person constitutes a violation of a statute, ordinance, by-law or regulation the major purpose of which is to prevent or minimize damage to the environment.[170]

Other states seeking to build upon or learn from the Massachusetts GWSA should assess (and possibly seek to change) the standing provisions for third parties in their state in order to ensure that citizen enforcement of climate laws is permitted.

C. *Get Specific*

Reducing GHGs at the pace and scale that science tells us is necessary to mitigate climate change is without doubt a new and challenging task both for government and for industry. Paradoxically, that urgency necessitates action in the near term, *before* the most devastating effects of climate change have become fully realized, and thus within a political cycle where concerns regarding cost and maintaining the status quo are likely to dominate. This creates a political setting where pushing past the tendency to focus on short-term concerns requires a great deal of strong will and accountability. Toward this end, drafters of climate laws must be as specific as possible in describing required emissions reduction activities.

Statutory clarity and specificity are desirable regarding, but not limited to, the following:

164. 10-Year Progress Report, *supra* note 159, at 14 fig.5.

165. The American Clean Energy and Security Act of 2009 (H.R. 2454), passed by the U.S. House of Representatives on June 26, 2009, would have implemented a federal cap-and-trade system. State regulations directing local compliance with such a system could have met the GWSA's §3(d) requirement.

166. *See*, *e.g.*, David Abel, *Mass. Is Easing Rules for Some Pollutants*, Boston Globe, Feb. 23, 2014, https://www.bostonglobe.com/lifestyle/health-wellness/2014/02/23/environmentalists-worry-about-raising-arsenic-and-lead-levels-allowed-under-building-sites/JE8OA4eaEEtQgBPA6FtNUL/story.html.

167. 480 Mass. 398 (2018).

168. Mass. Gen. Laws ch. 164, §69H (2019) (directing review only of the environmental impacts of proposed new generating facilities "consistent with the commonwealth's policy of allowing market forces to determine the need for and cost of such facilities").

169. Mass. Gen. Laws ch. 214, §7A (2019); 33 U.S.C. §1365 (CWA); 42 U.S.C. §7604(a)(1), (3); *see also id.* §7604(a)(2) (CAA).

170. Mass. Gen. Laws ch. 214, §7A (2019).

1. To what extent emission reductions are mandatory versus aspirational;
2. Which agency or entity is either enabled or delegated responsibility for emissions reduction efforts;
3. What are the complementary duties, responsibilities, collaboration, or other involvement by sister agencies or entities;
4. How will progress be measured and who is responsible for collecting and maintaining that data (and who has access to the data);
5. To what agency (or agencies) should emission reductions progress be reported (e.g., the state environmental protection agency, a legislative committee, some other oversight body);
6. Who has ultimate responsibility for the creation and enforcement of regulatory structures;
7. How/whether cost-benefit or cost-effectiveness analysis should be considered when regulating (e.g., must actions be "least-cost" or simply "cost-effective," and against what measure).

Perhaps unexpectedly, the Massachusetts experience is instructive vis-à-vis skewed perceptions of feasibility for GHG emission reductions. Specifically, one of the sticking points with the GWSA legislation was a concern articulated by the then-secretary of the EOEEA, who questioned whether it would be possible to achieve GHG reductions of more than 10% below 1990 levels by 2020. Strikingly, the subsequent analysis commissioned by the secretariat itself found that Massachusetts already was on track to achieve deeper emission reductions in that time frame, and conceivably could cost effectively achieve reductions much greater than 25% by 2020.

While drafting, it is also valuable to consider a portfolio of climate mitigation solutions, such as those that are already in place in other states, or that experts have suggested may be necessary to achieve deep decarbonization by mid-century. With such potential transformations in mind, a state emissions reduction law can proactively grant necessary authority or command new interagency coordination to allow for such solutions to be viably considered, and potentially selected, in the future.

D. Considerations for Other States

Based on our own experience, we see value in a provision like the §3(d) language at issue in *Kain*, and future statutes in other states could improve upon the model in Massachusetts. Specifically, and in addition to those items noted in the paragraphs above, future statutes could be even clearer than the Massachusetts GWSA about:

1. Careful attention to the statutory description of the types of regulations that are prescribed, including what sectors are subject to §3(d)-type requirements, how much, and by when;
2. More structure to guide understanding and decisionmaking around how much of the GHG emission reductions that need to happen must be accomplished through a §3(d)-type provision versus through other means, like market forces, voluntary programs, or incentives;
3. How the state climate policy intersects/accounts/plans/allows for existing or potential future regional, national, or international climate laws or compacts (e.g., the RGGI program);
4. Details about expectations and tools for enforcement.

We want to draw particular attention to the following considerations for other states:

1. Regional Climate Strategies

The area where we received the most pushback to our enforcement strategy in *Kain* from our usually friendly peer environmental organizations was the perceived threat to the RGGI program. We received a great deal of criticism for the implication in our argument that the RGGI program was insufficient to meet the requirements of the GWSA. Some saw our arguments as an attack on the concept of regulating carbon emissions regionally versus at the state level. They also saw our arguments about RGGI as a criticism of a program they had worked very hard to bring to fruition (though CLF was instrumental in bringing the RGGI program to fruition, and had no reason to try to hurt RGGI efforts through its enforcement of the GWSA).

Our honest view on this issue, which we know is not without controversy, is that though climate change is a problem best addressed at the regional, national, and global levels, it is also true that when more stakeholders are involved in policy decisions, with more divergent interests, it becomes increasingly difficult to find consensus, avoid watering down regulatory standards due to compromise, and engage in comprehensive enforcement. Even though RGGI is an excellent program that is working well, it is based on an equilibrium that requires political like-mindedness among a fairly large group of states. A material change in politics in any one of those states can threaten the success of the program. While we hope and expect that the RGGI program will continue to succeed in its goals, its existence does not justify inaction on climate in individual states participating in the RGGI program.

To the extent that regional solutions are considered for other sectors, such as the excellent initiatives of the Transportation and Climate Initiative to explore RGGI-like compacts for the transportation sector, we proffer that state and regional solutions can and should co-exist seamlessly; nothing in our GWSA litigation experience suggested otherwise.

2. Stakeholder Engagement Structures

Diverse stakeholder engagement is an important part of creating public policy that will work not just in theory, but

in practice. A policy that is adopted without stakeholder engagement is likely to silence

> [t]he people most in need of climate change law [who] are not even at the lawmaking table here in the United States. They are the very poor in far-removed parts of the globe and members of future generations . . . [I]n contrast, the entities skeptical of and opposed or even hostile to any such lawmaking will be extremely well represented and will also likely be supported by substantial political and economic power.[171]

In Massachusetts, stakeholder engagement came in the form of public participation in legislative and administrative processes through public comments. Other states have determined that different forms of stakeholder engagement are necessary—for instance, in Maine, the Climate Council is charged with creating a plan to meet the GHG emission reduction requirements in its climate statute.[172]

We are not close enough to the politics in Maine to know all the reasons why this approach was chosen, and it may well be that this strategy was best. However, it raises concerns for us that the legislature has included an additional layer of decisionmaking before mandatory, enforceable steps are taken to reduce GHG emissions. Adding steps in the process like this creates opportunities for conflict, sluggish progress, and political shifts that will impede progress. "Subsequent legislative amendments, limited budgets, appropriations riders, interpretive agency rulings, massive delays in rulemaking, and simple nonenforcement are more than capable of converting a seemingly uncompromising legal mandate into nothing more than a simple aspirational statement."[173]

As a result, shaping robust stakeholder engagement in a manner that avoids creating opportunities for hostile forces to avoid implementation is critical. Legislatures would do well to carefully prescribe these processes and their time lines in statute to avoid getting derailed at the administrative level. Richard Lazarus points to examples of policies that have done this successfully, and unsuccessfully, in his article "Super Wicked Problems for Climate Change: Restraining the Present to Liberate the Future."[174]

3. Political Differences

We want to fully acknowledge the political forces here. Massachusetts is known as a blue state, and the GWSA was passed under Governor Patrick, an ostensibly liberal democrat. Even so, it is a bit of a mystery even to us how this law managed to pass *unanimously* and on a relatively short time line.

Even in Massachusetts, extraordinary measures from third parties—as described above—were necessary to spur government to implement a law that was unanimously adopted and signed into law by two branches of government. This is not encouraging, to be sure, but while Governor Patrick is a Democrat who has been lauded for his environmental and clean energy progress, he was also an economic pragmatist and his cabinet was more of a probusiness force than some may realize. Nonetheless, the fact that Massachusetts is generally quite progressive on environmental issues and still could not enforce its own law in the absence of a judicial mandate may give other states reason to question how a similarly binding statutory framework could be successfully deployed in seemingly less supportive environments.

An enacted climate law is better than no climate law, and individual states will need to weigh the unique political factors in play when deciding how to shape a climate law that can come to fruition. In some states, politics will make the legislature the biggest hurdle, whereas the executive branch may be the political sticking point in other states. States faced with political challenges in the executive branch would benefit from reviewing the recommendations for policy design aimed at insulating agency officials from political pressures as outlined in Lazarus' article, such as shaping agency discretion through requirements for agency official qualifications or disqualifications, tenure, removal, and term limits.[175]

For proponents of a mandatory framework, pointing to the existence of such statutes in other states—even so-called blue states—provides an opportunity for more skittish jurisdictions to follow suit. Speaking to regulatory personnel in a state with strong climate mandates, such as Massachusetts or California, may provide additional reassurance about how implementation has affected government and regulated entities, as well as tips for how to make implementation as seamless as possible. As evidence mounts about the impacts of these statutes, states that are new to the issue will have more reassurance about the beneficial impacts they can deliver as well as best practices for achieving optimal results.

V. Conclusion

The IPCC special report on 1.5°C instructs that achieving a 1.5°C limit to global temperature rise is still achievable if swift action is taken, and that emissions must be reduced on the order of 45% by 2030 across all sources and all geographies, and must reach net zero emissions by mid-century. The requisite level of emission reductions estimated by the IPCC to be necessary to avert the worst impacts of climate change must be viewed as conservative. Subsequent studies have found that global warming has progressed further than previously thought.[176]

171. Richard J. Lazarus, *Super Wicked Problems for Climate Change: Restraining the Present to Liberate the Future*, 94 Cornell L. Rev. 1153, 1222 (2009).
172. L.D. 1679, An Act to Establish the Maine Climate Change Council to Assist Maine to Mitigate, Prepare for, and Adapt to Climate Change, 129th Leg. (Me. 2019).
173. Lazarus, *supra* note 171.
174. *Id.*
175. *Id.*
176. *See* Naomi Oreskes et al., *Scientists Have Been Underestimating the Pace of Climate Change*, Sci. Am., Aug. 19, 2019.

Given what is at stake, policymakers should focus on what is necessary and set mandates to achieve the required emission reductions, rather than taking a bottom-up approach of looking at what is feasible now. We know that the vast majority of tools needed to achieve deep decarbonization are available now, as reflected in the IPCC 1.5°C report, and there is a long history of policies spurring development and deployment of necessary solutions—any gaps can be addressed through solution-forcing mandates for deep decarbonization.

State policymaking and enforcement play a critical role in achieving both the deep near-term reductions and longer-term (mid-century) complete decarbonization that are required. The Massachusetts experience passing and implementing the GWSA points to the importance of a mandatory process, with clear and efficient enforcement pathways, for reducing GHG emissions.

REGULATING CAFOS FOR THE WELL-BEING OF FARM ANIMALS, CONSUMERS, AND THE ENVIRONMENT

by Lindsay Walton and Kristen King Jaiven

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SUMMARY

The livestock sector is one of the planet's primary causes of resource consumption and environmental degradation. Approximately 99% of meat and other animal products in the United States are from factory farms, and the number of concentrated animal feeding operations (CAFOs) continues to grow. This Article, adapted from Chapter 8 of *What Can Animal Law Learn From Environmental Law?*, 2d Edition (ELI Press, forthcoming 2020), examines animal agriculture in the U.S and the associated problems. It explores the economic advantage CAFOs enjoy over small-scale models, and provides suggestions for improving market imbalances; explains existing federal, state, and local laws addressing animal welfare and federal environmental laws that should apply, and offers suggestions for modifying these to adequately protect farm animals and the environment; and offers innovative alternatives to the use of CAFO products to allow consumers to fill the gaps left in farm animal regulation.

According to the United Nations Food and Agriculture Organization, the livestock sector of the agriculture industry is one of the planet's primary causes of resource consumption and environmental degradation.[1] It is a leader in air and water pollution, greenhouse gas (GHG) emissions, freshwater use, rainforest deforestation, biodiversity loss, species extinction, ocean dead zones, and habitat destruction.[2] In addition to its environmental impacts, the industry engages in practices that cause extreme animal suffering, and has dangerous impacts on human health and welfare, contributing to antibiotic resistance, disease, diet-related health issues, and even decreased property values.[3]

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1. U.N. Food & Agric. Org., Livestock's Long Shadow: Environmental Issues and Options 267 (2006), http://www.fao.org/3/a0701e/a0701e.pdf.
2. Cowspiracy: The Sustainability Secret (Kip Andersen 2014).
3. Carrie Hribar, National Ass'n of Local Bds. of Health, Understanding Concentrated Animal Feeding Operations and Their Impact on Communities (2010).

Commonly linked to farming are idyllic American images of open fields, green pastures, and cows grazing under the warm sun. In previous times, this may have been an accurate description, but over the past several decades, the animal agriculture industry in the United States has morphed into a high-intensity, high-profit, and high-pollution industrial farming system; or what has been described as a collection of "assembly line meat factories."[4]

As overall economic, political, and social paradigms related to meat, agriculture, and our food system have shifted, a monolithic farming model has emerged in the United States and abroad to replace the charming family farm described above with concentrated animal feeding operations (CAFOs).

The federal Clean Water Act (CWA) provides a somewhat sterile and unsatisfying definition of a "CAFO," as an animal feeding operation:

> [A] lot or facility . . . [where] animals . . . have been, are, or will be stabled or confined and fed or maintained . . . [and] crops, vegetation, forage growth, or post-harvest

4. Mark Bittman, *Rethinking the Meat-Guzzler,* N.Y. Times, Jan. 27, 2008, https://www.nytimes.com/2008/01/27/weekinreview/27bittman.html.

residues are not sustained in the normal growing facility over any portion of the lot or facility.[5]

It is further classified by its size and the number of animals confined.[6] In other words, a CAFO is a high-density facility that houses hundreds or thousands of animals in confinement, where the animals are brought feed, as opposed to grazing on land.[7] These facilities are also known as intensive livestock operations or, colloquially, "factory farms."

Today, approximately 99% of meat and other animal products in the United States are from factory farms,[8] and the number of CAFOs in the United States continues to grow.[9] This industrial production system no longer resembles its humble and sustainable beginnings. Notwithstanding these dramatic changes, the accompanying federal and state laws regulating animal agriculture have not similarly evolved. Consequently, CAFOs are largely not regulated, nor are their operators adequately penalized for their negative impacts on the environment, animals, and human health and welfare.[10]

This Article examines animal agriculture in the United States, with CAFOs reigning as the industry's contemporary production model. Part I of the Article introduces the problems associated with the development and existence of CAFOs. Part II explores the economic advantage that CAFOs enjoy over small-scale models, and provides suggestions for improving market imbalances. Part III explains existing federal, state, and local laws addressing animal welfare and federal environmental laws that should apply to CAFOs, and offers suggestions for modifying these regulations to adequately protect farm animals and the surrounding environment. Finally, Part IV offers innovative alternatives to the use of CAFO products to allow consumers to fill the gaps left in farm animal regulation.

I. Overview of CAFOs

A. Environmental Damage

The modern animal agriculture industry presents a cornucopia of environmental problems due to the collective quantity and mass confinement of livestock, such as manure management issues, air and water pollution,[11] and usage of freshwater.[12]

Manure storage and disposal is one of the most serious environmental issues associated with CAFOs. It is estimated that the nine billion confined U.S. farm animals produce almost one million tons of manure daily, which is three times the amount generated by humans in the country.[13] As the U.S. Government Accountability Office warns, this volume of waste threatens water quality in the event of spills, leakage from waste storage facilities, and runoff from fields.[14] In addition to the threat of physical spillage, ammonia and hydrogen sulfide emissions from waste can be harmful to the air quality, affecting animals, facility workers, and surrounding rural communities.[15]

Agricultural runoff from CAFOs causes aquatic "dead zones."[16] Given that many CAFO facilities exist in the American Midwest and throttle the Mississippi River, excess nitrogen and phosphorus from manure collect in the Gulf of Mexico, and have created an oxygen-deficient environment that destroys marine life and habitat.[17] With respect to freshwater usage, animal agriculture consumes a staggering one-third of the planet's drinkable water.[18] If that isn't enough, mass animal production is also responsible for numerous ancillary environmental damage, such as rainforest deforestation, species extinction, and habitat destruction in order to make space for animal grazing and feed cultivation.[19]

5. 40 C.F.R. §122.23(b) (2019).
6. *Id.*
7. Doug Gurian-Sherman, Union of Concerned Scientists, CAFOs Uncovered, The Untold Costs of Confined Animal Feeding Operations 13 (2008), https://www.ucsusa.org/food_and_agriculture/our-failing-food-system/industrial-agriculture/cafos-uncovered.html.
8. Jason R. Richards & Erica L. Richards, *Cheap Meat: How Factory Farming Is Harming Our Health, the Environment, and the Economy*, 4 Ky. J. Equine, Agric. & Nat. Resources L. 31, 32-33 (2012). Analysis uses data from the 2017 U.S. Department of Agriculture's (USDA's) *Census of Agriculture*, which was released on April 11, 2019. The most recent previous data available was for 2012, which showed around 98.66% of U.S. farmed animals lived on factory farms compared to the current figure of 98.74%. Analysis uses EPA regulations for what constitutes a CAFO in combination with the USDA data on how many animals live on farms of various sizes. Ninety percent of farmed animals worldwide live on factory farms.
9. The number of CAFOs have increased in the United States over the past seven years, bringing the total to just under 20,000, according to EPA. From 2011 to 2017, the United States saw more than 1,400 new CAFOs. Christopher Walljasper, *Large Animal Feeding Operations On the Rise*, Investigate Midwest.org (June 7, 2018), https://investigatemidwest.org/2018/06/07/large-animal-feeding-operations-on-the-rise/.
10. *Id.*
11. While recognizing the profound impacts CAFOs have on climate change, this Article omits discussion of GHG emissions. For a discussion, see Linda Breggin & Bruce Myers, *Tackling the Problem of CAFOs and Climate Change: A New Path to Improved Animal Welfare?*, *in* What Can Animal Law Learn From Environmental Law? (2d ed., Randall S. Abate ed. forthcoming 2020).
12. Gurian-Sherman, *supra* note 7.
13. https://www.farmsanctuary.org/learn/factory-farming/factory-farming-and-the-environment/.
14. U.S. Gen. Accounting Office, Report to the Honorable Tom Harkin: Animal Agriculture Waste Management Practices 1 (1999), https://www.gao.gov/archive/1999/rc99205.pdf.
15. Gurian-Sherman, *supra* note 7, at 14.
16. > Dead zone is a more common term for hypoxia, which refers to a reduced level of oxygen in the water . . . most marine life either dies, or, if they are mobile such as fish, leave the area. Habitats that would normally be teeming with life become, essentially, biological deserts.
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> National Oceanic & Atmospheric Admin., U.S. Dep't of Commerce, What Is a Dead zone? (2014), http://oceanservice.noaa.gov/facts/deadzone.html.
17. Emily A. Kolbe, *"Won't You Be My Neighbor?," Living With Concentrated Animal Feeding Operations,* 99 Iowa L. Rev. 415, 422 (2013).
18. Cowspiracy, *supra* note 2.
19. *Id.*

B. Animal Health and Welfare

There are ethical issues associated with CAFOs with respect to the treatment, health, and overall welfare of agriculture animals. In most existing livestock productions, cows, pigs, chickens, and other types of farm animals are collected in dangerously confined and filthy spaces and are forced to live on top of other animals and their own waste.[20] In an industry that values efficiency over quality, safety, and morality, these animals are viewed only as commodities, as typified by the following observation:

> Beef cattle in America at least still live outdoors, albeit standing ankle-deep in their own waste eating a diet [corn] that makes them sick. And broiler chickens, although they are bred for such swift and heavy growth they can barely walk, at least don't spend their lives in cages too small to ever stretch a wing. That fate is reserved for the American laying hen, who spends her brief span of days piled together with a half-dozen other hens in a wire cage . . . . Every natural instinct of this hen is thwarted, leading to a range of behavioral "vices" that can include cannibalizing her cage mates and rubbing her breast against the wire mesh until it is completely bald and bleeding . . . . [A]nd when the output of the survivors begins to ebb, the hens will be "force-molted"—starved of food and water and light for several days in order to stimulate a final bout of egg laying before their life's work is done.[21]

Commonly, CAFOs restrict animals from exercise or even moving their limbs, turning their bodies, or lying down.[22] These egregious conditions exist in the intensive confinement of hens in battery cages, calves in veal crates, and pigs in sow gestation crates,[23] and such immobilization causes extreme physical and psychological distress.[24] Yet unlike our beloved companion animals, farm animal abuse often goes unnoticed and unregulated.

C. Human Health and Welfare

CAFOs similarly impact human health and welfare. For example, animal products from these facilities—products in our grocery stores—are often riddled with disease, including *Escherichia coli* (*E.coli*) and *Salmonella*.[25] Given that antibiotics are habitually administered to livestock to manage disease and to increase growth,[26] people who eat these products are increasingly becoming resistant to antibiotics.[27] Diet-related chronic illnesses, including obesity, cardiovascular disease, arthritis, hypertension, type 2 diabetes, and various cancers, have also been associated with excess meat consumption.[28] In addition to all the foregoing direct health consequences, rural community residents who live and work near CAFOs suffer from noxious odors, noise, light pollution, and water and air contamination from the facilities, which often lead to other illnesses and decreased property values of their homes.[29]

D. Recipe for Disaster

Despite the noted environmental, animal, and human health and welfare crises associated with CAFOs, U.S. and international demand for animal products has risen dramatically over the past 50 years.[30] The reason for this, in part, is because meat is convenient and cheap. Animal products are relatively and artificially inexpensive because producers have developed extremely efficient husbandry methods, compounded with the benefits enjoyed by an industry that is radically and uniquely unregulated, where producers are not forced to internalize costs associated with the damage they create.[31]

CAFO proponents argue that these facilities naturally evolved to meet an increased demand, and that they are able to keep costs to consumers low because technological advancements have enabled efficient practices.[32] In a classic which came first—the chicken or the egg quandary—this begs the question of whether the industry evolved in order to sustain demand for animal products, or conversely, whether demand is high because the product is cheap. More importantly, why aren't producers forced to internalize costs for the damage created by these facilities? Why are CAFOs essentially unregulated in the United States?

II. Is Meat Really Cheap? Allocating the Negative Impacts to CAFOs

"What you pay for a cheeseburger is the price, but price isn't the cost. It isn't the cost to the producers or the marketers and it certainly isn't the sum of the costs to the world; those true costs are much greater than the price."[33]

Meat, eggs, and dairy (collectively, animal products) are relatively inexpensive. Yet, the prices we pay at the grocery store and fast-food restaurants are set artificially low due to the fact that the American animal agriculture industry is poorly regulated, not forced to internalize costs, and enjoys the benefits of strong federal subsidies.[34] This gives CAFOs an unfair economic advantage over smaller farms and food alternatives.[35]

According to the U.S. Department of Agriculture (USDA), over the past few decades, animal product production in the United States has shifted to fewer and much

20. Union of Concerned Scientists, The Hidden Costs of CAFOs 8 (2008).
21. Michael Pollan, The Omnivore's Dilemma 317 (2007).
22. Humane Soc'y of the United States (HSUS), An HSUS Report: The Welfare of Intensively Confined Animals in Battery Cages, Gestation Crates, and Veal Crates (July 2012), https://www.humanesociety.org/sites/default/files/docs/hsus-report-animal-welfare-of-intensively-confined-animals.pdf.
23. *Id.*
24. See discussion *infra* Part III.A.
25. Gurian-Sherman, *supra* note 7, at 62.
26. Hribar, *supra* note 3, at 10.
27. *Id.*
28. Mark Bittman, *The True Cost of a Burger*, N.Y. Times, July 15, 2014, http://www.nytimes.com/2014/07/16/opinion/the-true-cost-of-a-burger.html.
29. Hribar, *supra* note 3.
30. Bruce Myers, *Livestock's Hoof Print,* Envtl. F., Mar./Apr. 2014, at 36.
31. Gurian-Sherman, *supra* note 7.
32. Hribar, *supra* note 3, at 2.
33. Bittman, *supra* note 28.
34. Gurian-Sherman, *supra* note 7, at 1.
35. *Id.*

larger farms.[36] As evidence of this fact, historically, only four corporations have controlled over 85% of beef production in the United States; Tyson and Smithfield have controlled over one-half of the pork production; and Dean Foods has controlled 40% of the milk production.[37] With this trend, CAFOs are replacing family farms that simply cannot compete.

While CAFOs utilize subsidized grain feed, generally, non-CAFO operations are more environmentally sustainable and provide livestock with feed much closer to their natural diet.[38] Family-farmed, local, or humanely raised animal products, therefore, are often more expensive than their factory-farmed counterparts, partly because their prices more accurately reflect the "true cost" of the product.

The industry economically benefits from shifting certain costs to society as a whole. These costs, known as "externalities," are those not borne by the producer[39] to later pass to the consumer in the form of higher prices, but instead, are borne by the consuming public. So the price for that cheeseburger, for instance, is not the "true cost" because we ultimately pay for production in other ways.

A. Negative Externalities

It is difficult to estimate the exact monetary costs that society bears for all of the negative environmental, animal, and human health and welfare impacts caused by CAFOs. After all, is it possible to put a price on animal suffering? There are, however, numerous examples of direct and indirect environmental and human health and welfare damage to begin an analysis.

For instance, the Wisconsin Department of Natural Resources (DNR) recorded that in aggregate, over one million gallons of manure leaked from livestock operations across the state in 2013,[40] and additionally reported a 2018 manure spill that leaked 300,000 gallons into a grassy waterway.[41] This indicates that the threat is real and the problem continues. In some cases, a producer will be fined for such a release, but damage from runoff to the surrounding freshwater and groundwater in the form of wildlife and habitat destruction, odors, human illness, decreased property values, or new infrastructure, are generally paid by citizens.[42]

Furthermore, approximately 80% of antibiotics in the world are used for livestock.[43] Antibiotics have become part of the CAFO diet to prevent disease and to quickly increase animal size.[44] This practice, however, is creating a health crisis among humans because the more we ingest these drugs through animal product consumption, the less effective they become, which enables antibiotic-resistant bacteria-related illnesses, including *E. coli* and *Salmonella*.[45] Antibiotic resistance is a costly issue, as the National Academy of Sciences estimates that it has historically increased U.S. healthcare costs by approximately $4 billion dollars annually.[46]

B. Federal Subsidies for CAFOs

The U.S. government provides approximately $20 billion taxpayer dollars per year for farm subsidies.[47] By providing abundant grain subsidies for high-yielding crops, such as corn, the market price for grains has often dipped below the production price.[48] Because animal feed accounts for over one-half of a CAFO's operating costs, using corn allows CAFOs to save significantly on production costs.[49]

Do cows eat corn? They do when they are confined in CAFOs. CAFOs could not exist if not for the advent of cheap, federally subsidized corn,[50] because most of the corn grown in the United States is used for animal feed.[51] Animals that would naturally eat grass are instead given a diet of corn, antibiotics, and whatever pharmaceuticals are required for the animal to process corn.[52] This is considered a more efficient food source than grass because corn is cheaper and supplies greater caloric energy.[53]

C. Suggestions to Improve Market Imbalances

Animal law can learn from environmental law in areas where industries are held responsible for negative environmental impacts. For example, under the federal Resource Conservation and Recovery Act (RCRA), polluters are held strictly liable for the treatment, storage, and disposal of solid and hazardous substances that endanger human health or safety.[54] This guiding "polluter- pays" principle should be extended to CAFOs for the environmental damage they create. If, by regulation, CAFOs were forced to internalize the environmental, animal, and human health and welfare costs they generate, and thereby incur higher production costs,[55] these costs would likely pass to the consumer. This more expensive price could accurately reflect the "true cost"

36. National Agric. Statistics Serv., USDA, 2012 Census of Agric., U.S. Summary & State Data 1, Geographic Area Series, Part 51 (May 2014).
37. *See* Community Environmental Legal Defense Fund, *Model Food Bill of Rights,* http://celdf.org/-1-77 (last visited Jan. 17, 2020); *see also* S.J. Res. 12, 2015 Leg. Sess. (Ind. 2015), http://www.hecweb.org/wp-content/uploads/2015/01/SJR-12-Policy-Brief-2015-session.pdf.
38. Pollan, *supra* note 21, at 67.
39. Bittman, *supra* note 28.
40. Lee Bergquist & Kevin Crowe, *Manure Spills in 2013 the Highest in Seven Years Statewide*, Journal Sentinel, Dec. 5, 2013, http://www.jsonline.com/news/wisconsin/manure-spills-in-2013-the-highest-in-seven-years-statewide-b99157574z1-234701931.html.
41. Colleen Kottke, *Public Warned to Stay Out of Duck Creek on Oneida Reservation Due to "Acute" Manure Smell*, Wis. St. Farmer, Sept. 12, 2018.
42. Gurian-Sherman, *supra* note 7, at 65.
43. David A. Kessler, *Antibiotics and the Meat We Eat,* N.Y. Times, Mar. 27, 2013, http://www.nytimes.com/2013/03/28/opinion/antibiotics-and-the-meat-we-eat.html?r=0.
44. Hribar, *supra* note 3, at 10.
45. The Hidden Costs of CAFOs, *supra* note 21, at 6.
46. *Id.*
47. Rachel Wechsler, *Blood on the Hands of the Federal Government: Affirmative Steps That Promote Animal Cruelty,* 4 J. Animal L. & Ethics 183, 183-87 (2011).
48. *Id.* at 185.
49. *Id.*
50. Pollan, *supra* note 21, at 67.
51. Myers, *supra* note 30, at 35.
52. Pollan, *supra* note 21, at 75.
53. *Id.*
54. 42 U.S.C. §6901.
55. Gurian-Sherman, *supra* note 7, at 17.

of the factory-farmed cheeseburger, and allow the consumer to fairly choose from a comparably priced, sustainable source of meat, or a meat-free alternative.

Recent trends may indicate consumer demand for safer food practices has prompted industry self-regulation. For example, in December 2014, Starbucks initiated a policy banning the use of growth hormones and other inhumane practices.[56] Even McDonald's announced in March 2015 that U.S. restaurants will source only chickens raised without human-used antibiotics and milk from cows not treated with artificial growth hormones.[57] In following this trend, the United States should look to the European Union and regulate antibiotics for agricultural animals, in which case, there would likely be a similar decrease in the prevalence of resistant bacteria and illness.[58]

Finally, existing U.S. policies have put CAFOs at an economic advantage over small-scale, diversified farms, because many non-CAFO farms grow their own, suitable animal feed and do not benefit from grain subsidies.[59] In theory, the purpose of government subsidization is to assist industries and other organizations for the public good. In the case of agricultural subsidies in the United States, this should include meeting consumer demand safely and healthfully. As an alternative to the current system, then, the U.S. government could subsidize small-scale farms or animal product alternatives.

III. Existing Laws to Address CAFOs

A. Gaps in Existing Animal Rights Laws: Farm Animal Exceptions

1. Background on Farm Animal Cruelty

When abuse is inflicted on a companion animal, the act makes headlines in U.S. media coverage.[60] The coverage will describe the inhumane treatment of animals like dogs or cats in great detail, explaining how an individual beat, burned, starved, or even gassed an animal to death. The article typically will discuss how the perpetrator was held accountable for the act of cruelty, either by being sentenced to jail or having to pay a significant fine, or both. Yet similar acts of inhumanity occur daily on the factory farms that produce the majority of the U.S. meat supply, and these acts are not nearly as closely or comprehensively regulated by anti-cruelty protections.

Farm animals are subject to unnatural, unsanitary, and inhumane conditions for the duration of their wretched lives. Chickens are often debeaked to avoid fighting, die from suffocation caused by poor ventilation and the accumulation of ammonia from their waste, and spend their lives in confinement without the ability to exercise normal behaviors.[61] Cows also live in confined areas, spending the majority of their lives indoors.[62] Calves used for veal suffer some of the worst treatment in their short lives, including confinement to a location that does not allow movement and a limited diet to maintain the tenderness of their meat.[63] Pigs live a life of constant confinement without having the ability to walk or exhibit their natural survival instincts.[64]

What may be most disturbing is the effect of poor living conditions on the animal's mental health. The intelligence of pigs is well documented.[65] "Like dogs, pigs are active, inquisitive, and extremely social, forming bonds with other pigs, other animal species, and even humans."[66] While farm animals may be as smart and cognizant of their circumstances as companion animals, cruelty toward farm animals receives little attention. Such cruelty rarely makes the news, and the individuals responsible for the cruelty go unpunished. The discrepancy in the treatment of farm animals compared to other animals is the result of a history of farm animals being exempted from federal and state anti-cruelty laws.

2. Animal Welfare Law

a. Federal Animal Welfare Act

The Animal Welfare Act (AWA) is a federal act that seeks to regulate certain animals affecting commerce.[67] Specifically, Congress determined that it was

> essential to regulate . . . the transportation, purchase, sale, housing, care, handling, and treatment of animals by carriers or by persons or organizations engaged in using them for research or experimental purposes or for exhibition purposes or holding them for sale as pets or for any such purpose or use.[68]

While Congress found it critical to protect animals used for experimentation, exhibits, or pets, the AWA expressly excludes farm animals. The AWA defines "animal" as "any live or dead dog, cat, monkey (non-human primate mammal), guinea pig, hamster, rabbit, or such other warm-blooded animal, as the Secretary may determine is being used, or is intended for use, for research, testing, experi-

56. HSUS, *Timeline of Major Farm Animal Protection Advancements,* http://www.humanesociety.org/issues/confinement_farm/timelines/timeline_farm_animal_protection.html (last visited Jan. 17, 2020).
57. Press Release, McDonald's USA Announces New Antibiotics Policy and Menu Sourcing Initiatives (Mar. 4, 2015).
58. Gurian-Sherman, *supra* note 7, at 62.
59. Wechsler, *supra* note 47, at 185-86.
60. *New Jersey Man Who Gassed His Dog to Death Gets Probation,* N.Y. Times, Mar. 6, 2015, http://www.nytimes.com/aponline/2015/03/06/us/ap-us-dog-gassed-sentencing.html.
61. Elizabeth Overcash, *Unwarranted Discrepancies in the Advancement of Animal Law: The Growing Disparity in Protection Between Companion Animals and Agricultural Animals*, 90 N.C. L. Rev. 837, 866-67 (2012).
62. *Id.* at 868.
63. *Id.* at 868-69.
64. *Id.* at 867.
65. *Id.* at 872.
66. *Id.* at 873.
67. 7 U.S.C. §2131.
68. *Id.*

mentation, or exhibition purposes, or as a pet . . . ."[69] The definition expressly excludes, "other farm animals, such as, but not limited to livestock or poultry, used or intended for use as food or fiber, or livestock or poultry used or intended for use for improving animal nutrition, breeding, management, or production efficiency, or for improving the quality of food or fiber."[70] Consequently, the major animal welfare law in the country explicitly excludes the billions of animals that pass through inhumane CAFOs and slaughterhouses that may or may not be subject to (and may or may not comply with) humane slaughter requirements.[71]

While the scope of the AWA has been amended since it was originally enacted in 1966, the legislative history has been consistent throughout the years in its treatment of farm animals. The scope of the AWA has always been focused on companion-type animals and has always excluded animals used for human consumption. For example, during a U.S. House of Representatives' Committee on Agriculture meeting held in 1975, in a discussion regarding whether the Act should be amended to include certain classes of horses, Rep. W.R. Poage (D-Tex.), vice chairman of the committee, expressed his concern for horses during travel even if the horse's ultimate fate is slaughter: "I cannot understand what difference it makes whether you move them out for slaughter or for feed. A horse should be protected from unnecessary cruelty while he is being moved."[72] In the same meeting after a committee member explained that the AWA defined animals as excluding livestock and horses, committee member Rep. Jack Hightower (D-Tex.) stated that "[t]here is a substantial amount of difference in horses."[73] While the dialogue began a discussion about the applicability of the AWA to horses and what types of horses would be covered, what is noteworthy about the comments made by these Texas committee members is their opinion that horses are different even if the horse is going to slaughter. This blanket differential treatment of farm animals compared to other animals is evident throughout the committee meetings.

b. Humane Methods of Slaughter Act

Originally enacted in 1958, the Humane Methods of Slaughter Act (HMSA)[74] set national policy regarding the humane treatment of livestock during slaughter.[75] Under §1901 of the HMSA, the Act explains why humane slaughter is good U.S. policy, including the improvement of products derived from slaughter operations, safer working conditions for slaughterhouse employees, and the prevention of needless suffering.[76] Slaughtering methods meeting the humane slaughter requirements are set forth in §1902 of the HMSA. Specifically, there are two methods of slaughter deemed to be humane under the act: (1) cattle, calves, horses, mules, sheep, swine, and other livestock may be "rendered insensible to pain . . ." by gunshot or an electrical or chemical means; provided such method "is rapid and effective . . ."[77] or (2) anemia of the brain exercised "in accordance with the ritual requirements of the Jewish faith or any other religious faith . . . ."

The HMSA directs the Secretary of Agriculture to research and designate humane methods of slaughter for each species of livestock,[78] including nonambulatory livestock.[79] There are specific slaughter standards applicable to nonambulatory animals (or immobile animals), which seek to ensure humane slaughter is extended to animals that are either already near death or in a position that makes them more vulnerable to added abuse.[80] The HMSA is only applicable to livestock (not poultry) and excludes ritual slaughter.

While the HMSA attempts to bring humanity to the ultimate fate suffered by U.S. livestock, the HSMA fails because it excludes slaughtering operations that account for a majority of our meat supply. Over the past decade, poultry consumption has been on the rise.[81] The decision whether to include poultry within the scope of the HSMA has been a debate since the first humane-slaughter bill was introduced.[82] Until the bill that ultimately became the HMSA was enacted, both livestock and poultry were included under proposed bills.[83] The bill that was ultimately adopted, however, only addressed livestock, which term, as used by industry, does not include poultry species.[84] There was, however, a U.S. Court of Appeals for the Ninth Circuit case around the time the HSMA was making its way through the legislature, *Levine v. Vilsack,* that suggested USDA had acknowledged that poultry was livestock.[85]

In a 2005 *Federal Register* announcement, USDA expressly explained that while poultry was not protected under the HSMA, the Poultry Products Inspection Act's requirement that poultry slaughter be in accordance with good commercial practices so as to avoid having a poultry product be deemed adulterated, provided sufficient protection for poultry.[86] The failure to extend the HMSA to poultry is still a gap in the law that animal advocacy organizations seek to correct. *Levine* was an action to compel

69. *Id.* §2132(g).
70. *Id.*
71. Overcash, *supra* note 61, at 861 ("Due to this farm animal exemption, the Act specifically exempts more than ten billion animals killed yearly on factory farms.").
72. H.R. Rep. No. 94-2, at 21 (1975).
73. *Id.*
74. 7 U.S.C. §§1901-1907.
75. *Id.*
76. *Id.* ("It is therefore declared to be the policy of the United States that the slaughtering of livestock and the handling of livestock in connection with slaughter shall be carried out only by humane methods.").
77. *Id.* §1902(a).
78. *Id.* §1904.
79. *Id.* §1907.
80. *See generally* Cynthia Hodges, *Detailed Discussion of the Humane Methods of Slaughter Act,* Mich. St. U. Animal & Legal Historical Ctr. (2010), https://www.animallaw.info/article/detailed-discussion-humane-methods-slaughter-act (discussing specific regulations for the humane treatment of nonambulatory animals).
81. *Food and Agriculture, Meat Consumption per Person in the United States, 1960-2013*, Earth Pol'y Inst., Feb. 25, 2014, http://www.earth-policy.org/data_center/C24.
82. Jeff Wetly, *Humane Slaughter Laws,* 70 L. & Contemp. Probs. 175, 199 (2007).
83. *Id.* at 199-200.
84. *Id.* at 198-99.
85. 587 F.3d 986 (9th Cir. 2009).
86. Treatment of Live Poultry Before Slaughter, 70 Fed. Reg. 56624-701 (Sept. 28, 2005).

USDA to include the term "poultry" in the definition of the term "other livestock."[87] The Ninth Circuit dismissed the case for lack of redressability, explaining that because the HSMA does not contain an enforcement provision, a court opinion dictating the inclusion of poultry in the term livestock would be futile.[88]

c. State Criminal Anti-Cruelty Laws

Generally, states have gone to great lengths to ensure farm animals are excluded from state anti-cruelty statutes.[89] State anti-cruelty laws are hard to enforce against individuals suspected of farm animal abuse, including the ability to establish a requisite mental state for anti-cruelty statutes that require knowingly inflicting abuse and an inability to establish evidence since the abuse occurs on private property that is often not subject to regulatory inspection.[90] Despite the fact that state anti-cruelty laws are difficult to enforce given the broad discretion written into the statutes and the difficulty in establishing the elements of the charge, many state anti-cruelty protections do not even apply to farm animals.[91] Most states exclude farm animals expressly from state anti-cruelty statutes or, at a minimum, exclude cruelty in connection with normal farming practices.[92]

Notwithstanding this trend, there may be some hope for the enforcement of state criminal anti-cruelty laws for farm animals—if only it's not too late. As a cruel example, in June 2019, Fair Oak Farms in Indiana made headlines after an animal-rights organization released a video of abuse on the farm.[93] It was alleged that farm employees routinely abused farm livestock and "tortured, kicked, stomped on, body slammed, stabbed with steel rebar, threw off the side of trucks, dragged through the dirt by their ears and left [the animals] to die unattended in over 100-degree heat."[94] Authorities arrested workers in this case for the criminal charge of beating a vertebrate animal, and the suspects could face years in prison.[95] Hopefully, public awareness of these types of atrocities will force accountability and demand legislative change and enforcement.

3. Other Existing Laws That Affect Animal Rights

While the two main laws enacted in the United States to support animal rights and state anti-cruelty laws do little to protect farm animals from the torture experienced in CAFOs and during slaughter, the gaps in animal rights laws are somewhat mitigated by laws enacted to protect human public health. "Ag-gag" laws, however, could potentially cause additional harm to animals that are moving through the factory farm and slaughter process, as ag-gag laws restrict transparency in CAFO and slaughterhouse operations.

a. Federal and State Public Health Laws

In 1906, Upton Sinclair published *The Jungle,* a novel intended to expose the unsafe working conditions of immigrants in Chicago slaughterhouses.[96] The novel, however, became popular based on the food safety hazards that it revealed, including unsanitary meat-packing facilities, with graphic details of rats running across meat and being broken down into sausage.[97] Following publication of this novel, consumer protection laws, including food safety laws and meat inspection laws, were developed.[98] Consumer protection with regard to food production is an area that has received increasing attention in recent years as evidenced by the adoption of the Food Safety Modernization Act of 2011,[99] which mandates a complete review of issues related to food-borne illnesses in order to improve food safety.[100]

Today, there are various laws in place to ensure the safe production of meat. For example, the Federal Meat Inspection Act is a consumer protection law that was enacted because "[i]t is essential in the public interest that the health and welfare of consumers be protected by assuring that meat and meat food products distributed to them are wholesome, not adulterated, and properly marked, labeled, and packaged."[101] The Act seeks to regulate meat that may fall into the category of "adulterated" meat by ensuring that animals showing signs of disease be separately slaughtered and subject to careful examination.[102] Similarly, the Poultry Products Inspection Act seeks to prevent misbranded poultry from entering interstate commerce.[103] The Act requires adherence to commercial best practices[104] and seeks to ensure diseased animals are not used for human food.[105] These federal food safety laws recognize the need to ensure safety in the United States and international food

87. 587 F.3d at 987-88.
88. *Id.* at 989:
> In 1978, in legislation also termed a "Humane Methods of Slaughter Act" ("HMSA of 1978"), Congress repealed (along with certain other sections) the only enforcement provision contained within the HMSA of 1958 . . . , and, at the same time, incorporated humane slaughter provisions into the Federal Meat Inspection Act. . . .

89. *See* David J. Wolfson & Marianne Sullivan, *Foxes in the Hen House—Animals, Agribusiness, and the Law: A Modern American Fable, in* Animal Rights: Current Debates and New Directions (Cass R. Sunstein & Martha C. Nussbaum eds., 2004) (e-book).
90. *Id.* at 591-92:
> Thus, a recent New Jersey conviction of an egg producer was vacated on appeal because the evidence failed to show that the company, which had been found guilty of cruelty for having discarded two sick, but living, hens in a garbage bin containing dead hens, has "knowingly" done so since, "keeping in mind someone is dealing with an awful lot of these chickens . . . I can perhaps see how it could have been overlooked" that the chickens were alive then they were discarded.

91. Richards & Richards, *supra* note 8, at 34.
92. *Id.*
93. Alexia Elejalde-Ruiz, *1 Arrested in Fair Oaks Farms Animal Abuse Case; Fairlife, Farm Owners Hit With Lawsuit as Activists Release New Video*, Chicago Trib., June 13, 2019, https://www.chicagotribune.com/business/ct-biz-fairlife-mccloskeys-fraud-lawsuit-20190612-story.html.
94. *Id.*
95. *Id.*
96. Upton Sinclair, The Jungle (1906).
97. *Id.*
98. *Id.*
99. 21 U.S.C. §§2201-2252.
100. *Id.* §2201.
101. *Id.* §602.
102. *Id.* §603(a).
103. *Id.* §452.
104. Hodges, *supra* note 80.
105. 21 U.S.C. §460(d).

supplies to maintain consumer confidence in domestically produced food. While CAFOs still operate under these federal laws, as food safety becomes an increasingly important issue for U.S. consumers, preventing food-borne illnesses may require the improvement of commercial best practices and an increase in food production standards.

States have also enacted laws applicable to the handling and treatment of diseased animals, recognizing the need to ensure public health and viability of state agriculture industries. Federal and state governments have wide discretion in controlling animal disease.[106] The federal government may regulate diseased animals pursuant to its powers under the Commerce Clause, and state governments may regulate diseased animals through its police power.[107] In Florida, the Department of Agriculture and Consumer Services may declare certain animal diseases to be a public nuisance if "determined to be dangerous, transmissible, or threatening to an agricultural interest of the state . . . ."[108] If an animal is suffering from an infectious disease, individuals with this knowledge must notify the state veterinarian.[109] Florida statutes also require veterinarians with knowledge of diseased animals to report such information to the state veterinarian.[110] Failure to comply with these provisions can result in harsh consequences. Specifically, "[a]ny veterinarian or owner of an animal who is convicted of willfully failing to report an animal as required in subsection (1) or subsection (2) is guilty of a felony of the second degree . . . ."[111]

In Iowa, the Department of Agriculture and Land Stewardship has broad discretion to control infectious animal diseases.[112] For example, the department has the authority to do the following:

> Enter any place where any animal is at the time located, or where it has been kept, or where the carcass of such animal may be, for the purpose of examining it in any way that may be necessary to determine whether it was or is exposed to or afflicted with an infectious or contagious disease.[113]

In addition, "[t]he department may quarantine or destroy any animal exposed to or afflicted with an infectious or contagious disease."[114] Similarly, in Kansas, "[t] he state animal health commissioner is hereby directed to protect the health of domestic animals of the state from all contagious or infectious diseases and for this purpose is hereby authorized and empowered to establish, maintain and enforce such quarantine, sanitary and other regulations . . . ."[115] Failure to comply with a quarantine set by the state animal health commissioner could result in a felony conviction.[116]

b. Ag-Gag Laws

U.S. Environmental Protection Agency (EPA) Region 7, which consists of Iowa, Kansas, Missouri, and Nebraska, has some of the highest levels of livestock inventories.[117] Three of these states (Iowa, Kansas, and Missouri) have passed some form of an ag-gag law.[118] The term "ag-gag" refers to anti-whistleblower laws, which "make taking pictures, filming, or recording on farms and livestock production facilities illegal.[119] In Kansas, under the Farm Animal and Field Crop and Research Facilities Protection Act,[120] individuals may not, without the consent of the property owner, "enter an animal facility to take pictures by photograph, video camera or by any other means."[121] In Iowa, it is a crime to obtain access to an agricultural facility under false pretenses, including making a false statement in the process of becoming employed by the agriculture facility.[122] These laws are troubling both in their potential to inhibit free speech and their potential to block access to acts of animal cruelty, unsanitary operations, and Occupational Safety and Health Administration-related violations on factory farms and in slaughterhouses.

4. Suggestions to Improve Animal Rights Laws as Applied to CAFOs

Given the strength of the agribusiness lobby, comprehensive legislation to extend rights to farm animals is unlikely in the current political environment. This gap in animal welfare legislation across the United States leaves factory farms with wide discretion to operate in a manner that leads to the inhumane treatment of farm animals and, potentially, unsafe food production.

Federal laws enacted to ensure slaughtering activities are conducted in a manner that ensures the safety of the meat that enters U.S. and international markets, and the recently enacted Food Safety Modernization Act, are consumer protection-driven statutes aimed at protecting the food supply. State laws that provide state agricultural commissions with broad discretion to regulate diseased animals are grounded in protecting public health and maintaining viable agriculture industries within their state. While such laws are not grounded in reasons related to animal rights or improving the lives of farm animals,

106. *See* Campoamor v. State Live Stock Sanitary Bd., 136 Fla. 451, 457 (Fla. 1938) ("The doctrine of due process has no such implication when the life, health, and welfare of man or beast is involved as it has when other tangible property is at stake.").
107. *Id.* at 455.
108. Fla. Stat. §585.15 (2012).
109. *Id.* §585.18.
110. *Id.* §585.19(4).
111. *Id.*
112. Iowa Code §163.1 (2012).
113. *Id.* §163.1(6).
114. *Id.* §163.2.
115. Kan. Stat. Ann. §47-610 (2012).
116. *Id.* §47-604.
117. Kolbe, *supra* note 17, at 430.
118. *Ag-Gag Bills at the State Level,* American Soc'y for the Prevention of Cruelty to Animals, http://www.aspca.org/fight-cruelty/advocacy-center/ag-gag-whistleblower-suppression-legislation/ag-gag-bills-state-level (last visited Jan. 17, 2020).
119. Sonci Kingery, *The Agricultural Iron Curtain: Ag Gag Legislation and the Threat to Free Speech, Food Safety, and Animal Welfare,* 17 Drake J. Agric. L. 645, 647 (2012).
120. Kan. Stat. Ann. §47-1827.
121. *Id.* §47-1827(c)(4).
122. Iowa Code §§717A.3A(1)(a), 717A.3A(1)(b) (2019).

they do promote best practices to reduce disease and promote sanitary operations. These measures, while focused on human interests, could be used to indirectly support farm animals. For example, under the Food Safety Modernization Act, the U.S. Food and Drug Administration (FDA) is directed to "build an integrated national food safety system in partnership with state and local authorities and put[] more responsibility on food producers to institute plans to make food safer."[123] With this new mandate to promote safer food, FDA should take a closer look at the safety and regulation of the antibiotics used to rapidly increase the growth of farm animals and at the safety of farm animal feed. Reducing the use of antibiotics and feed that cannot be naturally digested by animals will prevent foodborne illnesses and overexposure to antibiotics while simultaneously improving the health and well-being of farm animals.

B. *Existing Environmental Laws That Should Apply to CAFOs and Indirectly Protect Farm Animals*

Many U.S. environmental laws were enacted in the 1970s, before the widespread development of CAFOs across the country. Therefore, the originally enacted regulations could not contemplate the various environmental concerns that would ensue from the development of the agriculture industry, and they have not been adequately amended since then to regulate the land, air, and water pollution from CAFOs.[124] Most federal environmental laws provide exemptions for agricultural activities; and this, combined with strong industry influence, has made it difficult for EPA to effectively regulate CAFOs.[125]

Nevertheless, to an extent, CAFOs *are* addressed under the CWA and the CAA. While these laws do not directly address animal welfare protection, or sufficiently redress their environmental impacts, agricultural animals could indirectly benefit from U.S. federal environmental laws if under their framework, CAFOs were comprehensively and strictly regulated.

1. The Clean Water Act

The large amount of waste produced from CAFOs presents water quality issues for groundwater, surface water, and aquatic ecosystems. Groundwater contamination may occur through runoff, leaching of manure into the ground, or leaks in manure containment structures, presenting a serious threat to drinking water.[126] CAFOs are the leading cause of pollution to surface water bodies[127] and cause dead zones in oceans.

The CWA, administered by EPA, is a federal law that prohibits the discharge of any pollutant by any person from any point source, into navigable waters of the United States, except for those who obtain requisite permits.[128] A "point source" is defined as "any discernable confined and discrete conveyance . . . from which pollutants are or may be discharged,"[129] and CAFOs are specifically listed in this definition.[130] Under §402 of the CWA, the national pollutant discharge elimination system (NPDES) program requires that all facilities that discharge pollutants into U.S. waters obtain an NPDES permit;[131] therefore, some CAFOs must obtain NPDES permits to comply with the CWA.[132]

Nevertheless, not all animal feeding operations fit within this regulatory scheme. Only medium- and large-size CAFOs (determined by the type of species and capacity of confined animals) are subject to regulation.[133] Even then, the CWA does not require a medium-size CAFO to obtain an NPDES permit unless one of the following conditions is satisfied: (1) pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or (2) pollutants are discharged directly into waters of the United States that originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.[134]

Therefore, small CAFOs and some medium CAFOs are considered "nonpoint sources," and are not held to the same standards as large CAFOs, even when they discharge pollutants into U.S. waters.[135] Moreover, though the CWA requires large (and some medium) CAFOs to obtain NPDES permits for discharges of manure, litter, or process wastewater, there is a broad exemption contained in the CWA for agricultural stormwater discharge.[136]

2. The Clean Air Act

CAFOs contribute to hazardous air pollution, particularly from decomposing animal manure that releases in the form of harmful gases, particulate matter, and odor.[137] These emissions are dangerous to the environment, animals, and human health and welfare, particularly to those within the facilities and neighboring rural communities, where residents suffer from respiratory issues, headaches, nausea, infant mortality, and depression.[138]

The federal CAA is the principal U.S. law regulating air pollution emissions from stationary and mobile sources[139]

123. Lauren Orrico, *Squashing the Superbugs: A Proposed Multifaceted Approach to Combatting Antibiotic-Resistant Bacteria*, 27 J.L. & Health 259, 273 (2014).
124. Elizabeth M. Stapleton, *Agriculture as an Industry: The Failure of Environmental and Agricultural Policy to Adapt to the Modern Agricultural Landscape*, 7 Alb. Gov't L. Rev. 321 (2014).
125. Myers, *supra* note 30, at 36.
126. Hribar, *supra* note 3, at 3-4.
127. *Id.* at 4.
128. 33 U.S.C. §§1251-1388.
129. *Id.* §1362(14).
130. *Id.*
131. *Id.* §1342.
132. 132 U.S. EPA, *Clean Water Act (CWA) Compliance Monitoring—Discharges From Concentrated Animal Feeding Operations* (last visited June 28, 2019).
133. 40 C.F.R. §122.23(b) (2014).
134. *Id.* §122.23(b)(6)(ii).
135. Kolbe, *supra* note 17, at 420.
136. 40 C.F.R. §22.23(e).
137. J. Nicholas Hoover, *Can't You Smell That Smell? Clean Air Act Fixes for Factory Farm Air Pollution*, 6 Stan. J. Animal L. & Pol'y 1, 7 (2013).
138. *Id.* at 7-8.
139. *Id.* at 9.

and authorizes EPA to protect and enhance the air quality of the United States.[140] The CAA regulates criteria pollutants,[141] hazardous air pollutants,[142] and emissions from certain specific sources.[143] Under §108 of the CAA, EPA is authorized to establish national ambient air quality standards (NAAQS) for air pollutants it finds may be reasonably expected to contribute to air pollution and endanger public health and welfare, and lists six criteria pollutants, including sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, lead, and particulate matter.[144]

Manure from CAFOs emits more than 160 gases, including some listed as these six criteria pollutants,[145] and therefore should be strictly regulated under the CAA. In fact, in 2002, EPA determined that CAFOs "plainly fit the definition of a stationary source."[146] In practice, however, EPA has rarely enforced the CAA against CAFOs, due to complexities in its regulatory structure, difficultly in enforcement, and pushback from the industry.[147] Moreover, like the CWA, regulatory definitions in the CAA allow many animal feeding operations to fall outside the scope of regulation and permitting requirements because the CAA focuses on "major source" air pollution emissions, under which most agricultural activities do not qualify.[148]

3. Suggestions to Improve Environmental Laws as Applied to CAFOs

The CWA and the CAA offer promising federal frameworks for meaningful regulation of the animal agriculture industry. But as it stands, the regulatory frameworks for both are deficient to effectively regulate the environmental damage to the water and air created by CAFOs.

The CWA's distinction between "point source" and "nonpoint source" for large, medium, and small animal feeding operations enables smaller facilities to discharge pollutants into U.S. waters because they do not fall within the definition to necessitate NPDES permits.[149] The agricultural stormwater discharge exemption presents an additional dangerous loophole. Ideally, both sections of the CWA should be amended to address these gaps in regulation. Similarly, the CAA should incorporate all animal feeding operations to qualify as "major sources" of air pollution emissions.

C. *Using Local Land Use Principles to Regulate CAFOs*

Outside of the federal regulatory requirements with which CAFO operators must comply, CAFOs may be subject to state and local laws, including zoning or public health ordinances that create further restrictions and limitations on CAFO siting procedures. While zoning and common-law nuisance claims remain options for some neighborhoods challenging the construction of a CAFO, zoning regulations may be preempted by state and federal laws.

1. State Agriculture Exemptions

Various forms of right-to-farm laws are present in all states.[150] These laws vary by state but generally seek to limit common-law nuisance claims against agricultural operations.[151] In Florida, farming operations in existence for at least one year may not be deemed a public or private nuisance if the operation was not a nuisance at the time it was established and is operated pursuant to generally accepted agricultural practices.[152] The statute provides examples of what would be deemed a nuisance, including the existence of untreated dead animals or human waste.[153] Similarly, in Michigan, "[a] farm or farm operation shall not be found to be a public or private nuisance if the farm or farm operation alleged to be a nuisance conforms to generally accepted agricultural and management practices according to policy determined by the Michigan commission of agriculture."[154] The right-to-farm law in Kansas seeks to undo the "coming to the nuisance" concept[155] discussed in *Spur Industries, Inc. v. Webb.*[156]

State right-to-farm laws, however, are not the only laws enacted at the state level. Agricultural exceptionalism is prevalent in many states and goes beyond limitations to nuisance claims. In Florida, nonresidential buildings, fences, and signs located on agricultural lands are exempt from the Florida Building Code and local codes that do not involve floodplain management.[157] Iowa exempts similar structures from county building codes on agricultural lands.[158] Beyond zoning regulations, some states even exempt actions that result in wetland degradation or diverting surface water flows if the purpose of the topography alteration is for agricultural purposes, and

140. 42 U.S.C. §§7401-7671.
141. *Id.* §7409.
142. *Id.* §7412.
143. *Id.* §7411.
144. *See id.* §7408; *see also* U.S. EPA, *What Are the Six Common Air Pollutants?,* http://www.epa.gov/oaqps001/urbanair/ (last visited Jan. 18, 2020).
145. Hoover, *supra* note 137, at 7.
146. Partial Withdrawal of Approval of 34 Clean Air Act Part 70 Operating Permits Programs in California; Announcement of a Part 71 Federal Operating Permits Program, 67 Fed. Reg. 63551, 63554-55 (Oct. 15, 2002).
147. Hoover, *supra* note 137, at 13.
148. Stapleton, *supra* note 124, at 329.
149. 40 C.F.R. §122.23(e).
150. Terence J. Centner, *Governments and Unconstitutional Takings: When Do Right-to-Farm Laws Go Too Far?,* 33 B.C. Envtl. Aff. L. Rev. 87, 87 (2006). *See also* Jonathan Morris, *One Ought Not Have So Delicate a Nose: CAFOS, Agricultural Nuisance, and the Rise of the Right to Farm,* 47 Envtl. L. 261, 276-79 (2017).
151. *Id.* at 88.
152. Fla. Stat. §823.14(4)(a) (2012).
153. *Id.* §823.14(4)(a)(1).
154. 154 Mich. Stat. §286.473 (1)(1995).
155. Kan. Stat. Ann. §2-3201.
156. *See* Spur Indus., Inc. v. Del E. Webb Dev. Co., 494 P.2d 700 (Ariz. 1972) (enjoining cattle feedlot because it was deemed a nuisance to residential neighborhood and requiring developer to pay damages to the cattle feedlot because it was the developer who built a neighborhood close to the preexisting cattle feedlot operation).
157. Fla. Stat. §604.50(1).
158. Iowa Code §335.2 (2015).

the alteration is normal and customary for the specific agricultural property.[159]

2. Zoning Challenges and Common-Law Nuisance Claims

While agricultural exceptionalism thwarts localized efforts to challenge the siting of new CAFOs or existing nuisance claims, there has been some localized success. In *Thieman v. Cedar Valley Feeding Co.,* a real property owner challenged Cedar Valley Feeding Company's livestock feeding operation for violating local zoning regulations.[160] Cedar Valley Feeding Company operated a livestock feeding operation prior to the implementation of specific zoning laws applicable to such operations.[161] The livestock-feeding ordinance allowed non-conforming uses existing at the time the zoning ordinance went into effect but did not allow such use to be increased.[162] Cedar Valley Feeding Company argued the non-conforming use would allow a use up to the actual capacity of the facility on the date the ordinance went into effect; however, the court disagreed. The Nebraska Court of Appeals determined that the non-conforming use was not based on capacity, but instead was based on actual use.[163] While this decision did not restrict Cedar Valley Feeding Company's operation of the CAFO completely, it did limit its operations to 5,000 cattle as opposed to the 7,500 cattle to which the company claimed rights.[164]

In *Nickels v. Burnett,* landowners surrounding a prospective hog confinement facility challenged the facility based on common-law nuisance and sought a preliminary injunction to prevent the facility's construction.[165] At the time the plaintiffs challenged the action, the Illinois Department of Agriculture had already authorized the construction pursuant to the Livestock Management Facilities Act.[166] Defendant farm owners filed a motion to dismiss, arguing that plaintiffs needed to exhaust their administrative remedies by challenging the Illinois Department of Agriculture's authorization of the facility.[167] The trial court granted plaintiffs' preliminary injunction and held that they could pursue a common-law nuisance claim despite the pending review of the Illinois Department of Agriculture's decision.[168] Defendants appealed the trial court's decision as a violation of the separation-of-powers doctrine and claimed the trial court's decision to grant the injunction was erroneous because plaintiffs failed to exhaust their administrative remedies.[169] The Appellate Court of Illinois, Second District, however, affirmed the trial court's decision.[170] First, the appellate court considered the defendant's challenges to be, essentially, a preemption argument.[171] The court held the Livestock Management Facilities Act did not preempt a claim for common-law nuisance because the Act, among other reasons, did not provide a remedy or an enforcement provision.[172] In 2018, landowners living near hog farms successfully challenged the farm's practice of storing and disposing of hog waste by suing the pork producers—Murphy-Brown/Smithfield Foods—for public nuisance instead of pursuing a claim against the facility owner.[173]

Using zoning and common-law nuisance claims to fill gaps in environmental law is not a new concept. Zoning regulations that restrict high-intensity uses from low-intensity uses provide added protection to environmentally degrading activities that may be authorized under federal and state environmental laws. Zoning regulations that prioritize protecting open spaces, recreation areas, historical sites, and conservation areas have become priorities for many local governments.[174] Zoning and common-law nuisance claims also have been used to combat climate change-related issues.[175] Provided that preemption or federal displacement does not preclude such claims, local land use mechanisms and common-law claims may be available as strategies to prevent the siting of CAFOs.

IV. Innovative Solutions for Consumers to Address the CAFOs Problem

Increasingly, individuals are concerned about where their food comes from, how it was made, and the health consequences associated with its consumption. People are realizing that their poor health is associated with a broken food system. Localized movements are not new—anti-corporate farming legislation has been in place for years.[176] These food transparency movements may be the key to resolving the environmental and animal welfare issues arising from CAFOs because these initiatives will work to reduce consumer demand for meat produced through factory farming. While individuals are becoming increasingly interested in knowing where their food comes from, gaining meaningful information that allows individuals to make educated decisions can be a challenge. Labels used to describe products or processes as "natural," "antibiotic-free," and "USDA

159. Fla. Stat. §373.406(2).
160. 789 N.W.2d 714, 716 (Neb. Ct. App. 2010).
161. *Id.* at 719.
162. *Id.* at 716.
163. *Id.*
164. *Id.*
165. 343 Ill. App. 3d 654, 655-56 (Ill. App. Ct. 2003).
166. *Id.* at 655.
167. *Id.* at 659.
168. *Id.* at 656-57.
169. *Id.* at 657.
170. *Id.* at 656.
171. *Id.* at 659.
172. *Id.* at 661.
173. Anne Blythe, *Jury Awards More Than $25 Million to Duplin County Couple in Hog-Farm Case*, The News & Observer, June 29, 2018, https://amp.newsobserver.com/news/local/article214096384.html.
174. John R. Nolon, *Using Zoning to Protect the Environment:* An Excerpt *From Protecting the Environment Through Land Use Law: Standing Ground*, Land Use Prof Blog (2014), https://lawprofessors.typepad.com/land_use/2014/10/using-zoning-to-protect-the-environment-an-excerpt-from-protecting-the-environment-through-land-use-.html#.
175. *See generally* Native Village of Kivalina v. Exxon-Mobil Corp., 696 F.3d 849 (9th Cir. 2012) (public nuisance claim involving a native Alaskan tribe against multiple oil and energy companies); *see also* Fla. Stat. §163.3178(1) (addressing sea-level rise in local government comprehensive plans: "[I]t is the intent of the Legislature that local government comprehensive plans restrict development activities where such activities would damage or destroy coastal resources. . . .").
176. John C. Pietila, *"(W)e're Doing This to Ourselves": South Dakota's Anticorporate Farming Amendment*, 27 J. Corp. L. 149, 161 (2001).

certified" have unclear meanings.[177] Such labels may also represent the opinion of a review board with inadequate ethical standards.[178] Without educating consumers about the true meaning of statements made on meat packaging, consumers may think they are purchasing items within the realm of their health or ethical standards, but in reality are being misled by deceptive labeling practices.[179] Educational campaigns that seek to provide insight into the true meaning of meat labeling will arm consumers with the tools they need to make well-informed purchases.[180]

Campaigns to support more sustainable agriculture, including reducing food waste, may be helpful to improve conditions on CAFOs. For example, to reduce the use of corn as cattle feed, which is not a food source that can be naturally digested by cows and leads to *E. coli*,[181] the byproducts of human food production may be redirected from the landfill to use as animal feed.[182] Redirecting spent grain, which is the byproduct of brewing beer, to animal feed is a common example of reducing the use of corn while simultaneously preventing food waste, which is acceptable under FDA regulations so long as the brewery complies with human-food rules.[183] Further, programs like Green Mountain Power's cow power program in Vermont, which promotes using anaerobic digesters to put waste from dairy cows to good use by capturing methane from the waste and converting it to electricity, are innovative ways of reducing waste on farms.[184] After a digester processes manure, the manure goes through a separator to create a dry, odorless solid that can be used for bedding for the animals and fertilizer.[185] This program makes dairy farms more efficient, reduces waste and environmental degradation, and improves animal welfare by creating an incentive to remove waste from animal pens.

Campaigns seeking to reduce meat consumption could also be used to improve farming practices and reduce the impact of CAFOs on the environment by reducing the overall consumer demand for meat products. Campaigns such as the "Meatless Monday"[186] initiative that encourages consumers to forego meat just one time per week or the "Meat Out" initiative that encourages consumers to "kick the meat habit"[187] appeal to consumers' desires to support the environment, improve their individual health, and accomplish personal financial goals.[188] Complementing initiatives to reduce meat consumption are the initiatives to produce plant-based meat alternatives. Many innovative companies recognize that using factory farming to produce meat and animal products is unstainable and are shifting their focus to the production of plant-based meat alternatives.[189] Investment in meat alternatives, however, is not limited to innovative startups, as major players in meat production are entering the plant-based meat market.[190] Specifically, Tyson has invested in Beyond Meat, producer of the Beyond Burger that looks and tastes like real meat; and, ConAgra Foods purchased LightLife, which produces meat alternatives.[191]

While there appears to be a market for plant-based meat,[192] and the big players in meat production are looking to participate in this new market,[193] farmers have challenged how meat alternatives can be marketed to consumers.[194] Ranchers and other members of the beef industry have challenged whether the Beyond and Impossible burgers, which have striking similarities to beef in their look and feel, i.e., bleeding like real meat, should be legally marketed as meat.[195] Conversely, grocers support using the term "meat" to market plant-based food products.[196] While it is still unclear how lab-produced meat alternatives should be marketed to avoid consumer confusion, such products do appear to be another way to mitigate the consequences of large-scale factory farming and meat production.[197]

177. People for the Ethical Treatment of Animals (PETA), *Other Labels on Meat Packages,* http://www.peta.org/issues/animals-used-for-food/labels/. *See also* Kylee Sigmon, Consumer Perceptions of Organic, Natural, and Conventional Products When Provided at the Same Price; Agricultural Education, Communications and Technology Undergraduate Honors Theses (2019), 8-13, https://scholarworks.uark.edu/cgi/viewcontent.cgi?article=1007&context=aectuht ("If consumers have no knowledge of how these various labeled products differ, they could be buying products which have qualities for which they do not actually want to pay.").
178. Michelle Kretzer, *CONSUMER ALERT: Don't Be Fooled by Butterball's "Humane" Label,* PETA, Nov. 13, 2014, http://www.peta.org/blog/consumer-alert-dont-fooled-butterballs-humane-label/.
179. Sigmon, *supra* note 177, at 8-13.
180. *Id.* at 29.
181. Frontline, *Interview With Michael Pollan,* http://www.pbs.org/wgbh/pages/frontline/shows/meat/interviews/pollan.html.
182. Eliza Barclay, *Why We Rarely Feed Animals Food Scraps, Even in a Drought,* NPR, Sept. 6, 2012, http://www.npr.org/blogs/thesalt/2012/09/06/160684126/why-we-rarely-feed-animals-food-scraps-even-in-a-drought.
183. Press Release, FDA, FDA Releases Updated Proposals to Improve Food Safety and Help Prevent Food-Borne Illness in Response to Public Comments (Sept. 19, 2014), http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm414867.htm.
184. Green Mountain Energy, *How It Works,* http://www.greenmountainpower.com/innovative/cow/how-it-works/.
185. *Id.*
186. Meatless Mondays, http://www.meatlessmonday.com/.
187. Brad Tuttle, *The Meatless (and Less Meat) Revolution*, Time, Mar. 22, 2012, http://business.time.com/2012/03/22/the-meatless-and-less-meat-revolution/.
188. *Id.* ("The USDA has noted a steady decline in meat consumption throughout the recession era, which is understandable because meals without meat (think rice and beans, pasta, etc.) tend to be much less expensive than New York strip steaks.")
189. Jeremy Coller, *The State of Factory Farming: Present and Future*, 20 ABA Agric. Comm. Newsl. 4, 6 (2016). ("Meat alternatives are more sustainable over the long term, and in the short term generally offer lower and less volatile input costs, e.g., chickpeas are much cheaper to produce than chicken, and exciting opportunities exist to use current manufacturing processes to quickly build scale. Bruce Friedrich, Chief Executive Officer at specialists New Crop Capital argues: 'In 2014, the global meat substitutes market was worth about $3.4 billion and is forecast to grow by 7.5 percent a year over the next five years—making it worth nearly $6 billion by 2022.' And these are conservative estimates.")
190. Michele H. Inman, *An Investigation into the Potential Impact of Carve-Outs for Ranching and Farming Protects Through State Constitutional Amendments*, 8 Alb. L. Rev. 1417, 1467-48 (2019) ("It is possible that the growing awareness of food animal cruelty practices, environmental damage, food safety and nutrition and business interests are increasingly resonating with consumers, causing the major players in the food system to pay attention.")
191. *Id.*
192. Coller, *supra* note 189, at 6.
193. Inman, *supra* note 190, at 1467-48.
194. Nathaniel Popper, *You Call That Meat? Not So Fast, Cattle Ranchers Say*, N.Y. Times, Feb. 9, 2019, https://www.nytimes.com/2019/02/09/technology/meat-veggie-burgers-lab-produced.html.
195. *Id.*
196. *Id.*
197. For an in-depth analysis of lab-grown meat and its implications for animal welfare and sustainability, see Carita Skinner & Gabriela Steier, *Lab-Grown*

Additionally, consumers are increasingly looking to local food options because of fears regarding food-borne illnesses and a demand for transparency in the food system.[198] The Tester-Hagen Amendment seeks to exempt small direct-to-consumer farmers from the regulatory requirements imposed by the Food Safety and Modernization Act and increase research into the safety of food produced on a small-scale operation instead of in an industrialized setting.[199] Increasing the availability of local direct-to-consumer farms provides consumers with greater opportunities to demand their food come from humane operations.

Innovative ideas like these and conscious consumers are key to returning to our idyllic image of the farm where there is minimal impact on the environment, the animal is raised and fed sustainably and fairly, and after a good life, the animal is humanely slaughtered and consumed by individuals with confidence in the nutritional quality and safety of their meal. As innovation continues and people become acutely aware of the environmental degradation and animal injustice suffered in the factory farming process, legislators may be more apt to close the loopholes existing throughout federal and state animal welfare and environmental laws. Until then, individuals must remember that eating is more than a mere act of consumerism, but instead "eating is an agricultural act" that requires scrupulous attention to the consequences of their food choices.[200]

V. Conclusion

Current federal and state regulations governing CAFOs are riddled with exemptions and loopholes that allow factory farming to thrive throughout the United States at the expense of the environment, animal welfare, and human health and welfare. The market is not an accurate representation of the true costs of meat production because it fails to internalize the environmental and ethical consequences of factory farming and is skewed by government subsidies. Local residents and governments make attempts to keep CAFOs out of their neighborhoods, but suffer more losses than wins due to preemption by state and federal law. With these hurdles in place, how can the environmental consequences of factory farming be managed to promote farm animal and human health and welfare? The answer lies in increasing transparency in the food system, supporting research and development into meat alternatives, and finding innovative ways to promote best practices for CAFOs.

Meat: A Critical Perspective on Cellular Agriculture and Its Role in the Future of Farm Animal Welfare and Environmental Protection, *in* What Can Animal Law Learn From Environmental Law? (2d ed., Randall S. Abate ed. forthcoming 2020).

198. *See* Peter Anderson, *Empowering Local and Sustainable Food: Does the Food Safety Modernization Act's Tester-Hagen Amendment Remove Enough Barriers?*, 9 J.L. Econ. & Pol'y 145 (2012).

199. *Id.* at 158 (Few studies of this kind for meat and poultry have been conducted, but there is anecdotal evidence supporting the hypothesis that non-industrial meat is safer than industrial meat.).

200. Wendell Berry, What Are People For? 170 (2010).

SPECIES PROTECTION AS A NATURAL CLIMATE SOLUTION

by Mackenzie Landa

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SUMMARY

This Article, adapted from Chapter 16 of *What Can Animal Law Learn From Environmental Law?*, 2d Edition (ELI Press, forthcoming 2020), explores existing and potential wildlife conservation policies that could play a vital role in mitigating global climate change. It describes how climate change is impacting wildlife and biodiversity around the globe and reviews the history and current state of U.S. policy, including how the federal government currently manages climate change issues under the ESA. It then proposes ways that the ESA and other wildlife conservation policies can mitigate climate change as natural climate solutions. It analyzes new wildlife conservation policies for their potential to mitigate climate change, and concludes that these can provide much-needed protection for species and biodiversity, while also serving as a valuable and meaningful tool to combat climate change.

Climate change is among the leading threats to the long-term survival of species and habitats today.[1] As such, wildlife protection is a crucial component of the climate conversation. Increasingly warm temperatures are having widespread impacts on ecosystems and biodiversity around the globe. Species migration, extinctions, and changes in behavior and population have already been recorded.[2] Habitats are shifting and shrinking and the wildlife that depend on them face an uncertain future as temperatures continue to rise.[3]

While the impacts of climate change on biodiversity cannot be understated, wildlife can play another role in the climate discussion: mitigation. Wildlife conservation laws and policies can be used both as a tool to help wildlife adapt to climate change and as a powerful natural climate solution to mitigate climate change. Natural climate solutions, such as large landscape conservation and the protection and restoration of forests, wetlands, and other natural spaces, are ways to significantly reduce greenhouse gas (GHG) emissions and store carbon in lands and soils.[4] Improved land and habitat management have the potential to deliver up to one-third of the emissions reductions needed to meet emissions targets by 2030.[5]

Wildlife conservation policies should be considered and utilized as one such natural climate solution. For example, protecting species such as the polar bear from climate change under the Endangered Species Act (ESA) provides safeguards for the species, but it also makes oil and gas development in polar bear habitat more difficult, thereby limiting the potential for fossil fuel emissions[6]; establishing wildlife corridors is necessary for species connectivity, but it also requires preservation of natural spaces which sequester carbon; and designating critical habitat provides

1. United Nations, *U.N. Report: Nature's Dangerous Decline "Unprecedented"; Species Extinction Rates "Accelerating*," Sustainable Dev. Goals Blog (May 6, 2019), https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/ [hereinafter U.N. Report].
2. Douglas Lipton et al., *Ecosystems, Ecosystem Services, and Biodiversity*, *in* 2 Impacts, Risks, and Adaptation in the U.S.: Fourth Nat'l Climate Assessment 275-76 (R.D. Reidmiller et al., eds. 2018).
3. *Id.*; *see also* Craig Welch, *Half of All Species Are on the Move—And We're Feeling It*, Nat'l Geo., Apr. 27, 2017, https://www.nationalgeographic.com/news/2017/04/climate-change-species-migration-disease/.
4. *See* Joseph E. Fargione et al., *Natural Climate Solutions for the United States*, Sci. Adv., Nov. 2018, at 4.
5. *Natural Climate Solutions*, The Nature Conservancy, https://www.nature.org/en-us/what-we-do/our-insights/perspectives/natural-climate-solutions/ (last visited Dec. 19, 2019); Georgina Gustin, *Natural Climate Solutions Could Cancel Out a Fifth of U.S. Emissions, Study Finds*, Inside Climate News, Nov. 14, 2018, https://insideclimatenews.org/news/14112018/climate-change-solutions-forests-farms-carbon-storage-cancel-out-emissions-study.
6. *See generally* Eric Hull, *Using Climate Change Impacts as Leverage to Protect the Polar Bear: The Value of Habitat Protection in Promoting Animal Welfare*, *in* What Can Animal Law Learn From Environmental Law? (2d edition forthcoming 2020).

additional protected areas for wildlife populations, but it also limits the potential for forest and wetland conversion to cropland or development. The health of the ecosystems on which humans and wildlife depend cannot be sustained without addressing the causes of climate change.

This Article proposes that wildlife protection is a natural climate solution and it will explore the array of existing and potential wildlife conservation policies that could play a vital role in mitigating global climate change. Part I of this Article describes how the consequences of climate change are impacting wildlife and biodiversity around the globe and how those impacts will increase in severity if GHG emissions continue on their current trajectory. Part II reviews the history and current state of U.S. policy on climate change. After setting the framework for the current regulatory regime, Part III describes one of the essential solutions to the climate crisis—natural climate solutions. Before proposing wildlife conservation policies that can serve as natural climate solutions, Part IV provides a brief review of how the federal government currently manages climate change issues within the framework of the ESA.

Part V proposes ways that the ESA and other wildlife conservation policies can mitigate climate change as natural climate solutions. As the strongest conservation law in U.S. history, the ESA has the potential, if implemented as a resource to protect species from climate change, to be a valuable and significant tool to regulate GHG emissions and increase carbon sequestration. Part V also analyzes new wildlife conservation policies for their potential to mitigate climate change. It concludes that wildlife conservation policies can provide much-needed protection for species and biodiversity, while also serving as a valuable and meaningful tool to combat climate change.

I. Climate Change Impacts on Wildlife

On March 1, 1872, President Ulysses S. Grant signed the Yellowstone National Park Protection Act, establishing the National Park System and officially making Yellowstone America's first national park.[7] Part of what makes Yellowstone National Park special and worthy of the designation is its "diversity of natural wealth," which includes unique hydrothermal features; pristine forests and waters; breathtaking geologic wonders; and most of all, iconic and treasured wildlife, including bison, grizzly bears, gray wolves, and elk.[8] The Greater Yellowstone Ecosystem is one of the largest intact temperate-zone ecosystems on earth and its habitat serves as a sanctuary for the largest concentration of wildlife in the lower 48 states.[9]

Despite nearly 150 years of federal protection, human-caused climate change is putting this iconic ecosystem at risk. Rising temperatures in higher elevations have increased the population of mountain pine beetles and greatly expanded their range.[10] This particular species of bark beetle feed on whitebark pine trees, a keystone tree species that supports the entire Yellowstone ecosystem.[11] Since 2009, more than 95% of whitebark pine trees have died as a result of the pine beetles and 75% of the mature whitebark pines in Yellowstone National Park are now dead.[12] The destruction of these trees also puts other species in the park at risk, as whitebark pine trees create habitat and serve as a critical food source for species such as grizzly bears and squirrels.[13]

The consequences of climate change are not, of course, limited to the inhabitants of Yellowstone National Park—they are being felt by species in every corner of the globe. Sea turtles, for example, face threats from hotter sand temperatures, which cause greater numbers of turtles to be born female.[14] In the Pacific Ocean's largest and most important green sea turtle nesting ground, female sea turtles now outnumber males by 116 to 1.[15] Sea turtles around the world are showing similar trends, causing scientists to worry about the species' long-term sustainability.[16] Coral reefs, which have the highest biodiversity of any ecosystem globally, are decreasing at alarming rates.[17] Warming temperatures are causing mass coral bleaching events around the world, which will increase in intensity and frequency as temperatures continue to rise.[18] In fact, all coral reefs in the 29 reef-containing World Heritage Sites will cease to exist by the end of the century if humans do not reduce

7. Nat'l Park Serv., *Birth of a National Park*, https://www.nps.gov/yell/learn/historyculture/yellowstoneestablishment.htm (last visited Dec. 19, 2019); Andrew Glass, *Yellowstone Becomes Nation's First National Park, March 1, 1872*, Politico (Mar. 1, 2019), https://www.politico.com/story/2019/03/01/yellowstone-national-park-1189251; *cf. 8 Presidents Who Shaped America's Public Lands*, U.S. Dep't of the Interior (DOI) Blog (Feb. 12, 2016), https://www.doi.gov/blog/8-presidents-who-shaped-americas-public-lands. President Grant was also the first president to use federally owned land to protect wildlife. In 1868, he set aside the Pribilof Islands in Alaska as a reserve for the northern fur seal.

8. *Greater Yellowstone Ecosystem*, Nat'l Park Serv., https://www.nps.gov/yell/learn/nature/greater-yellowstone-ecosystem.htm (last visited Dec. 19, 2019); Nat'l Park Serv., Yellowstone Resources and Issues Handbook 53 (2016), https://www.nps.gov/yell/planyourvisit/upload/RI_2016_FINAL_Ecosystem_web.pdf; *Yellowstone*, Nat'l Wildlife Fed., https://www.nwf.org/Home/Educational-Resources/Wildlife-Guide/Wild-Places/Yellowstone (last visited Dec. 19, 2019).

9. Yellowstone Resources and Issues Handbook, *supra* note 8, at 53.

10. Elizabeth Shogren, *How a Tiny Beetle Could Decimate Yellowstone*, Nat'l Pub. Radio (Dec. 26, 2010), https://www.npr.org/2010/12/26/132348210/how-a-tiny-beetle-could-decimate-yellowstone; Hillary Rosner, *The Bug That's Eating the Woods*, Nat'l Geo., Apr. 2015, https://www.nationalgeographic.com/magazine/2015/04/pine-beetles-forest-destruction-canada-rockies/.

11. Douglas Fischer, *Yellowstone's Iconic High Mountain Pines Dying by Beetle's Mouth*, Sci. Am., Oct. 8, 2014, https://www.scientificamerican.com/article/yellowstone-s-iconic-high-mountain-pines-dying-by-beetle-s-mouth/.

12. *Id.*; Rosner, *supra* note 10.

13. *Greater Yellowstone Inventory & Monitoring Network: Whitebark Pine*, Nat'l Park Serv., https://www.nps.gov/im/gryn/whitebark-pine.htm (last visited Dec. 19, 2019); *Wildlife*, Whitebark Pine Found. (Nov. 13, 2018), https://whitebarkfound.org/wildlife/; *see also* Rosner, *supra* note 10.

14. Craig Welch, *Rising Temperatures Cause Sea Turtles to Turn Female*, Nat'l Geo., Jan. 8, 2018, https://www.nationalgeographic.com/news/2018/01/australia-green-sea-turtles-turning-female-climate-change-raine-island-sex-temperature/.

15. *Id.*

16. *Id.*; Craig Welch, *Sea Turtles Are Being Born Mostly Female Due to Warming—Will They Survive?*, Nat'l Geo., Apr. 4, 2019, https://www.nationalgeographic.com/environment/2019/04/sea-turtle-sex-ratio-crisis-from-climate-change-has-hope/.

17. *Coral Reefs and Climate Change*, Int'l Union for Conservation of Nature, https://www.iucn.org/resources/issues-briefs/coral-reefs-and-climate-change (last visited Dec. 19, 2019).

18. *Id.*

GHG emissions.[19] Koalas, too, face threats to survival as a result of carbon pollution.[20] Increased carbon dioxide (CO_2) reduces nutrients in eucalyptus leaves, which the koala depends on as a food source, leaving koalas vulnerable to malnutrition and starvation.[21] The poster species for climate change, polar bears, have earned this distinction as sea ice and snowpack melt and decline. Polar bears—and many ice- and snow-dependent species—are suffering the effects of warming temperatures. Polar bears rely on sea ice for hunting, breeding, migrating, and resting. As temperatures increase, so does their risk of starvation and, ultimately, extinction.[22]

The above examples are just a small handful of species facing extinction and declining populations due to climate change. There are countless others. In fact, in May 2019, the United Nations Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) published a report finding that nature is declining globally at an unprecedented rate and that an estimated *one million* species are threatened with extinction, many within decades.[23] The report ranked climate change among the top-five leading direct drivers of species decline and projected that climate change will become an increasingly important driver of biodiversity loss as its impacts become more severe.[24]

If current trends continue, biodiversity and species around the globe face a grim future. The earth's climate is changing faster than at any point in modern history—the consequences of which are already playing out around the world and are projected to increase and intensify.[25] Melting glaciers and snow cover are shrinking and sea ice is retreating.[26] Extreme weather events such as storms and wildfires are increasing in frequency and severity.[27] Seas are warming, rising, and becoming more acidic.[28] Flooding and droughts are becoming more frequent.[29] Wildlife species face all of these challenges from climate change, combined with other threats to their survival such as habitat loss and exploitation.[30]

In the last two years, numerous reports have been published that have warned of the impacts climate change will have on biodiversity, species, and habitats. The Intergovernmental Panel on Climate Change (IPCC) released a report in October 2018 that found that "[t]emperature rise to date has already resulted in profound alterations to human and natural systems, including increases in droughts, floods, and some other types of extreme weather; sea level rise; and biodiversity loss."[31] According to the Fourth National Climate Assessment, a report published by the U.S. Global Change Research Program in November 2018, "[w]ithout significant reductions in GHG emissions, extinctions and transformative impacts on some ecosystems cannot be avoided."[32] A second IPCC report, published in August 2019, found that as a consequence of the shifting of climate zones, "many plant and animal species have experienced changes in the ranges, abundances, and shifts in their seasonal activities."[33]

To adapt to the impacts of climate change, species are altering their behavior, geographic ranges and migrations patterns, and timing of biological events.[34] As habitats, food sources, and ecosystems are altered by warming temperatures, affected wildlife species face an uncertain future.[35] As the rate of warming outpaces species' ability to adapt, extinction may occur at both local and global levels, increasing the risk of extinction for 20-30% of species in this century alone.[36] Climate change is among the leading threats to the health, vitality, and—ultimately—the survival of species today.

II. A History of U.S. Climate Policy

Despite having more than half a century to confront the climate crisis, there continues to be a profound lack of congressional consensus on how to regulate GHG emissions.[37] The federal government acknowledged carbon pollution's impact on the climate as early as 1965, when the President's Science Advisory Committee released a report that warned of anthropogenic climate change, stating that the "production of carbon dioxide from fossil fuel combustion" will have a significant effect on climate and predicting that by the year 2000, "the increase in atmospheric CO_2" may "produce measurable and perhaps marked changes in cli-

19. *Id.*
20. Int'l Union for Conservation of Nature, Koalas and Climate Change: Hungry for CO_2 Cuts (2009), https://cmsdata.iucn.org/downloads/fact_sheet_red_list_koala_v2.pdf.
21. *Id.*
22. *See* Michelle Ma, *Polar Bears Across the Arctic Face Shorter Sea Ice Season*, Nat'l Aeronautic & Space Admin. (Oct. 3, 2016), https://climate.nasa.gov/news/2499/polar-bears-across-the-arctic-face-shorter-sea-ice-season/; *see also Polar Bears and Climate Change*, World Wildlife Fund, https://www.worldwildlife.org/pages/polar-bears-and-climate-change (last visited Sept. 14, 2019).
23. U.N. Report, *supra* note 1.
24. *Id.*
25. Alexa Jay et al., *Overview*, *in* 2 Impacts, Risks, and Adaptation in the U.S.: Fourth National Climate Assessment 39 (R.D. Reidmiller et al. eds., 2018).
26. *Id.* at 37; *see also* Envtl. Law Inst. (ELI), *The Impact of Climate Change on Species and Their Habitat*, *in* 3 Law of Environmental Protection §21:61 (2018) (many species rely on sea ice habitat for hunting, most notably the polar bear).
27. Jay et al., *supra* note 25, at 69; ELI, *supra* note 26. Storms diminish beach habitats, which will impact species that rely on them, such as seals and sea turtles.
28. *Id.* (these changes in seas can impact, for example, species that rely on shallow water for habitat, such as dolphins and manatees).
29. *Id.*
30. U.N. Report, *supra* note 1.
31. Myles R. Allen, IPCC, Global Warming of 1.5°C 49-91, 53 (V. Masson-Delmotte et al. eds., 2018).
32. Jay et al., *supra* note 25, at 42.
33. Almut Arneth et al., IPCC, Climate Change and Land 6 (2019), https://www.ipcc.ch/site/assets/uploads/2019/08/4.-SPM_Approved_Microsite_FINAL.pdf.
34. Lipton et al., *supra* note 2, at 269; ELI, *supra* note 26; Jay et al., *supra* note 25, at 53.
35. Jay et al., *supra* note 25, at 53, 57; *see generally* ELI, *supra* note 26.
36. Lipton et al., *supra* note 2, at 289; Barry Kellman, *Climate Change in the Endangered Species Act: A Jurisprudential Enigma*, 46 ELR 10845, 10846 (Oct. 2016).
37. Nicole Rushovich, *Climate Change and Environmental Policy: An Analysis of the Final Guidance of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*, 27 B.U. Pub. Int'l L.J. 327, 329 (2018).

mate, and will almost certainly cause significant change in the temperature."[38] That same year, President Lyndon B. Johnson remarked in a speech to the U.S. Congress that "[a]ir pollution is no longer confined to isolated places. This generation has altered the composition of the atmosphere on a global scale through radioactive materials and a steady increase in carbon dioxide from the burning of fossil fuels."[39]

The next administration, under President Richard Nixon, established the Council on Environmental Quality and its first annual report published in 1970 included a chapter devoted to CO_2-driven warming of the planet.[40] In 1977, the U.S. National Academy of Sciences (NAS) published a report finding that "the primary limiting factor on energy production from fossil fuels over the next few centuries may turn out to be the climate effects of the release of carbon dioxide."[41] The report cautioned of catastrophic impacts on agriculture, fishing, and sea-level rise. The *Washington Post* reported in July 1977 that although scientific concern regarding global warming was not new, NAS' warning "is the first to carry the cachet of the nation's official scientific establishment."[42] In 1979, NAS published a follow-up report stating that "[w]e now have incontrovertible evidence that the atmosphere is indeed changing and we ourselves contribute to that change. . . . A wait-and-see policy may mean waiting until it is too late."[43]

In the early 1980s, Congress began organizing congressional hearings on climate change,[44] an effort led by then-congressman Albert Gore.[45] As a congressman in the lower chamber, Gore secured the first two hearings on climate change, one in 1981 and a second in 1982.[46] It was, however, a series of breakthrough U.S. Senate hearings in 1986 on the subject of "Ozone Depletion, the Greenhouse Gas Effect, and Climate Change," followed by groundbreaking testimony from National Aeronautics and Space Administration scientist Dr. James Hansen in a 1988 Senate hearing that really brought the dangers of GHG emissions into policy discussions.[47] Dr. Hansen testified that the earth was warmer than at any other time in recent history and that it was 99% certain that the global warming trend was not a natural variation, but caused by man-made pollution, primarily from burning fossil fuels and land-use changes.[48]

The same year Dr. Hansen delivered his historic testimony, the United Nations (U.N.) assembled the IPCC and in 1992, it established the U.N. Framework Convention on Climate Change (UNFCCC).[49] In signing the UNFCCC, President George H.W. Bush declared that the United States intends "to be the world's pre-eminent leader in protecting the global environment."[50] In 1997, President Bill Clinton signed the Kyoto Protocol, which set emissions targets for developed countries.[51] The agreement, however, was never submitted to the Senate for approval[52] and in 2001, President George W. Bush announced that the United States would not join the Kyoto Protocol and withdrew from the agreement.[53]

Throughout the 1990s and 2000s, Congress did take incremental steps to reduce the U.S. carbon footprint,

38. President's Science Advisory Comm., The White House, Restoring the Quality of Our Environment: Report of the Environmental Pollution Panel President's Science Advisory Committee 113, 126-27 (1965); *see also* Cale Jaffe, *Melting the Polarization Around Climate Change Politics*, 30 Geo. Envtl. L. Rev. 455, 459 (2018).
39. Jaffe, *supra* note 38, at 459 (quoting President Lyndon Johnson, Special Message to the Congress on Conservation and Restoration of Natural Beauty (Feb. 8, 1965)); David Doniger, *The Clean Air Act and Climate Change: Where We've Been and Where We're Going*, Natural Resources Def. Council (Nov. 18, 2014), https://www.nrdc.org/experts/david-doniger/clean-air-act-and-climate-change-where-weve-been-and-where-were-going.
40. Council on Envtl. Quality, Environmental Equality: The First Annual Report (1970); *see also* Doniger, *supra* note 39; Rushovich, *supra* note 37, at 338.
41. *See* National Research Council, Energy and Climate: Studies in Geophysics viii (1977), https://doi.org/10.17226/12024; *see also* Jaffe, *supra* note 38, at 460.
42. Editorial, *Coal and the Global Greenhouse*, Wash. Post, July 27, 1977, at A22; Jaffe, *supra* note 38, at 460.
43. Jule G. Charney et al., National Research Council, Carbon Dioxide and Climate: A Scientific Assessment vii-viii (1979).
44. The first hearing on climate change was actually in the 1960s and additional hearings were held in both the U.S. House of Representatives and the Senate in the 1970s. Some argue, however, that those hearings did not specifically focus on anthropogenic global warming. *The Adequacy of Technology for Pollution Abatement: Hearing Before the Subcomm. on Sci., Research, & Dev. of the H. Comm. of Sci. & Astronautics*, 89th Cong. (1966), http://njlaw.rutgers.edu/collections/gdoc/hearings/6/66062721a/66062721a_2.pdf#page=88; *National Climate Program Act: Hearing Before the Subcomm. on Sci., Tech., & Space of the S. Comm. on Commerce, Sci., & Transp.*, 95th Cong. (1977), https://babel.hathitrust.org/cgi/pt?id=mdp.39015068355463&view=1up&seq=10; *The National Climate Program Act: Hearing Before the Subcomm. on the Env't & the Atmosphere of the H. Comm. on Sci. & Tech.*, 94th Cong. (1976), https://babel.hathitrust.org/cgi/pt?id=mdp.39015068355620&view=1up&seq=8.
45. Chris Mooney, *30 Years Ago Scientists Warned Congress on Global Warming. What They Said Sounds Eerily Familiar*, Wash. Post, June 11, 2016, https://www.washingtonpost.com/news/energy-environment/wp/2016/06/11/30-years-ago-scientists-warned-congress-on-global-warming-what-they-said-sounds-eerily-familiar/; Ben Block, *A Look Back at James Hansen's Seminal Testimony on Climate, Part One*, Grist, June 16, 2008, https://grist.org/article/a-climate-hero-the-early-years/; Glenn Kessler, *Kerry's Claim That He Organized the "Very First" Hearings on Climate Change*, Wash. Post, Mar. 18, 2015, https://www.washingtonpost.com/news/fact-checker/wp/2015/03/18/kerrys-claim-that-he-organized-the-very-first-hearings-on-climate-change/.
46. Kessler, *supra* note 45; *Carbon Dioxide and Climate: The Greenhouse Gas Effect: Hearing Before the Subcomm. on Natural Res., Agric. Research, & Env't & the Subcomm. on Investigations & Oversight of the H. Comm. on Sci. & Tech.*, 97th Cong. (1981), https://www.scribd.com/document/259162016/Gore-Hearing-on-global-warming-July-31-1981.
47. Kessler, *supra* note 45; Mooney, *supra* note 45; *Ozone Depletion, The Greenhouse Effect, and Climate Change: Hearing Before the Subcomm. on Envtl. Pollution of the S. Comm. on Env't & Pub. Works*, 99th Cong. (1986), http://njlaw.rutgers.edu/collections/gdoc/hearings/8/86602726a/86602726a_1.pdf.
48. Kessler, *supra* note 45; Justine Sullivan, *The Historic 1988 Senate Climate Hearing: 30 Years Later*, United Nations Found. Blog (June 22, 2018), https://unfoundation.org/blog/post/the-historic-1988-senate-climate-hearing-30-years-later/; Philip Shabecoff, *Global Warming Has Begun, Expert Tells Senate*, N.Y. Times, June 24, 1988, https://www.nytimes.com/1988/06/24/us/global-warming-has-begun-expert-tells-senate.html.
49. Sullivan, *supra* note 48; Jaffe, *supra* note 38, at 463.
50. UNFCCC, May 9, 1992, 1771 U.N.T.S. 107, 165; S. Treaty Doc. No. 102-38 (1992); U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 I.L.M. 849 (1992); Center for Climate & Energy Solutions, *Congress Climate History*, https://www.c2es.org/content/congress-climate-history/ (last visited Dec. 19, 2019).
51. Kyoto Protocol to the UNFCCC, Dec. 10, 1997, 37 I.L.M. 22 (1998); 2303 U.N.T.S. 148, 162; U.N. Doc. FCCC/CP/1997/7/Add.1; *Congress Climate History*, *supra* note 50.
52. The Senate passed a resolution stating that the United States should not be a signatory to any agreement that did not also include emissions commitments by developing countries. *Congress Climate History*, *supra* note 50.
53. *Id.*; David E. Sanger, *Bush Will Continue to Oppose Kyoto Pact on Global Warming*, N.Y. Times, June 12, 2001, https://www.nytimes.com/2001/06/12/world/bush-will-continue-to-oppose-kyoto-pact-on-global-warming.html; Paul Reynolds, *Kyoto: Why Did the U.S. Pull Out?*, BBC News, Mar. 30, 2001, http://news.bbc.co.uk/2/hi/americas/1248757.stm.

such as adding a renewable energy tax credit to the 1992 Energy Policy Act; establishing a Greenhouse Gas Reporting Program for public reporting of GHG emissions from large sources; and passing the Energy Independence Security Act of 2007 which, among other things, boosted the use of renewable energy and established energy efficiency standards for buildings and appliances.[54] Many other bills aimed at regulating carbon pollution were introduced in both chambers of Congress but never became law.[55] As time went on, the increasing political polarization of acting on climate change made passing a meaningful climate regulatory plan impossible.

The opportunity to pass comprehensive climate legislation finally came in 2007. Shortly after Democrats took control of the U.S. House of Representatives following the 2006 elections, House Speaker Nancy Pelosi established the Select Committee on Energy Independence and Global Warming (Select Committee). The chair of the Select Committee, then-Rep. Ed Markey (D-Mass.), and the chair of the Energy and Commerce Committee, then-Rep. Henry Waxman (D-Cal.), introduced the American Clean Energy and Security Act (ACES) on May 15, 2009.[56] The groundbreaking bill, often referred to as Waxman-Markey, was a comprehensive climate bill that would have established a cap-and-trade program designed to reduce GHG emissions by more than 80% by 2050 compared to 2005 levels.[57] On June 26, 2009, Waxman-Markey passed in the House by a vote of 219-212.[58]

Ultimately, Waxman-Markey died in the Senate when then-Senate Majority Leader Harry Reid (D-Nev.) refused to bring the legislation to a vote on the floor.[59] When, in the next election, Republicans won a majority of seats in the House, the new congressional leadership eliminated the Select Committee, and any efforts to include climate change in the legislative agenda were abandoned. Congress would fail to make another attempt at a major climate bill for another decade; however, with the collapse of the Waxman-Markey bill, President Barack Obama took executive action and his administration issued the Clean Power Plan on August 3, 2015.[60] The rule sought to reduce carbon pollution by setting a limit on emissions produced from existing power plants.[61] Just a few months later in December 2015, the United States committed to join the Paris Climate Agreement, a historic international agreement aimed at combating climate change.[62]

With the implementation of the Clean Power Plan and the adoption of the Paris Climate Accord, it seemed as if the United States was finally taking steps to lead on GHG regulation. As it seems with U.S. climate policy, however, what comes up must come down. When the Obama Administration came to an end, the new Trump Administration rolled back these climate victories, repealing the Clean Power Plan and announcing that the United States would withdraw from the Paris Climate Accord.[63]

Therefore, as of this writing, Congress has failed to pass any comprehensive climate-focused legislation and the Trump Administration has rolled back any climate-related executive achievements. Although preexisting legislation such as the Clean Air Act and the National Environmental Policy Act are often used as tools to limit carbon pollution, specific climate-focused legislation, much less a comprehensive plan to solve the climate crisis, remains missing from U.S. policy.

Despite these developments, hope remains. A full decade after the failure of the Waxman-Markey climate bill, there is again an opportunity for congressional action on the climate crisis. After eight years of Republican rule, Democrats finally regained a majority in the House in the 2018 mid-term election, capturing control of the lower chamber's legislative agenda. Firmly back in control of the gavel, one of Speaker Pelosi's first acts as the newly reappointed Speaker of the House was to reestablish a Select Committee on climate change: the Select Committee on the Climate Crisis. In the first six months in the majority, congressional Democrats held nearly 50 hearings on climate change. For the first time since the 2009 Waxman-Markey Bill, the House passed major climate change legislation: H.R. 9, the Climate Action Now Act, which commits the United States to remaining in the Paris Agreement. After nearly a decade of congressional climate denial, legislative action on climate change is back on the table.

It is crucial that this climate momentum not dissipate, as has previously happened time and again. For the United States to significantly reduce carbon pollution and meet necessary emissions targets, the United States will need to

54. *Congress Climate History*, *supra* note 50; Rushovich, *supra* note 37, at 341; Greg Dotson, *The Carbon Tax Vote You've Never Heard of and What It Portends*, 36 UCLA J. Envtl. L. & Pol'y 167, 191-92 (2018).

55. For example, the McCain-Lieberman Climate Stewardship Act was introduced in the Senate in 2003 and 2005. The bill proposed a cap-and-trade program that would have covered 85% of U.S. emissions. Rushovich, *supra* note 37, at 339; Dotson, *supra* note 54, at 190.

56. Amanda Reilly & Kevin Bogardus, *7 Years Later, Failed Waxman-Markey Bill Still Makes Waves*, E&E News, June 27, 2016, https://www.eenews.net/stories/1060039422; Daniel J. Weiss, *Anatomy of a Senate Climate Bill Death*, Center for Am. Progress (Oct. 12, 2010), https://www.americanprogress.org/issues/green/news/2010/10/12/8569/anatomy-of-a-senate-climate-bill-death/.

57. Reilly & Bogardus, *supra* note 56; *Congress Climate History*, *supra* note 50; Dotson, *supra* note 54, at 193-94.

58. Reilly & Bogardus, *supra* note 56; Office of the Clerk, U.S. House of Representatives, *Final Vote Results for Roll Call 477*, http://clerk.house.gov/evs/2009/roll477.xml (last visited Dec. 19, 2019).

59. Reilly & Bogardus, *supra* note 56.

60. Rushovich, *supra* note 37, at 342.

61. *Id.*

62. Press Release, The White House, U.S. Leadership and the Historic Paris Agreement to Combat Climate Change (Dec. 12, 2015), https://obamawhitehouse.archives.gov/the-press-office/2015/12/12/us-leadership-and-historic-paris-agreement-combat-climate-change; U.N. Doc. FCCC/CP/2015/L.9/Rev/1 (Dec. 12, 2015), https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf.

63. Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 82 Fed. Reg. 48035 (Oct. 16, 2017) (to be codified at 40 C.F.R. pt. 60); Press Release, U.S. Environmental Protection Agency, EPA Takes Another Step to Advance President Trump's America First Strategy, Proposes Repeal of "Clean Power Plan" (Oct. 10, 2017), https://www.epa.gov/newsreleases/epa-takes-another-step-advance-president-trumps-america-first-strategy-proposes-repeal; Michael D. Shear, *Trump Will Withdraw U.S. From Paris Climate Agreement*, N.Y. Times, June 1, 2017, https://www.nytimes.com/2017/06/01/climate/trump-paris-climate-agreement.html; Camila Domonoske & Colin Dwyer, *Trump Announces U.S. Withdrawal From Paris Climate Accord*, Nat'l Pub. Radio (June 1, 2017), https://www.npr.org/sections/thetwo-way/2017/06/01/530748899/watch-live-trump-announces-decision-on-paris-climate-agreement.

use all the available tools in its regulatory toolbox, including passing new laws as well as using existing authority in creative ways. Nature-based climate solutions, such as wildlife conservation, are a prime example of this dual approach to climate regulation. Congress will need to pass new laws to ensure habitat protection at the scale necessary to combat climate change, but agencies must also use already existing legislation, such as the ESA, to begin using nature-based solutions as a means of climate mitigation.

III. Natural Climate Solutions

To limit warming to 1.5° Celsius (°C), or even 2°C—the target scientists agree must be achieved to avoid the most catastrophic consequences of climate change—it will be necessary to drastically reduce GHG emissions across all sectors of the global economy. Much of the effort to reduce emissions has been focused on energy efficiency, renewable energy, and clean transportation.[64] While emissions reductions in these sectors will be absolutely critical to reach global climate goals, it will also be necessary to reduce emissions from land use and use nature-based solutions to store and sequester carbon.

Natural climate solutions refer to ways to reduce GHG emissions and store carbon in landscapes based on the conservation, restoration, and management of forests, wetlands, farms, and natural lands.[65] Land stewardship options have significant potential for climate change mitigation and can deliver up to one-third of the emissions reductions needed to hit emissions targets by 2030.[66] While land-based strategies are not sufficient on their own to solve the climate crisis, they are essential to meeting emissions goals. Nations around the world have recognized the importance of nature-based solutions, with more than 120 countries—about 75% of the signatories to the Paris Agreement—including natural climate solutions in their nationally determined contributions.[67]

A recently published study found that natural climate solutions could contribute over one-third of the necessary emissions reduction by removing of 23.8 billion tons of CO_2 equivalent per year.[68] For reference, if nature-based solutions were deployed across U.S. landscapes, it would be equal to the emissions reductions if every car and truck in the country were taken off the roads.[69] Furthermore, nature-based solutions, such as reforestation and the conservation and protection of lands and natural spaces are low-cost, require no additional technology developments, and generate co-benefits such as improved biodiversity as well as air and water quality.[70]

Land can be both a source and sink with respect to carbon in the atmosphere. Poor land stewardship results in the release of CO_2 in the atmosphere and reduces the opportunity for lands to sequester carbon. A recently released report by the IPCC on climate change and the land estimated that nearly one-quarter of total global GHG emissions come from land use, such as agriculture and deforestation.[71] Humans have cut down 46% of all trees on the planet.[72] In the tropics, where deforestation is especially problematic, less than half of forests remain.[73] In the Amazon Rainforest, a soccer field-size area is clear-cut every *minute*.[74] When forests and other landscapes, such as grasslands and wetlands, are converted to cropland and urban development, the carbon stored in the roots, soils, and trees is released into the atmosphere.[75]

Improved land management both prevents carbon from being released through deforestation and conversion of natural spaces and increases carbon sequestration in soils, trees, oceans, and wetlands. Reforestation and afforestation have the largest maximum mitigation potential of all nature based solutions.[76] In fact, approximately 2.6 billion tons of CO_2, one-third of the fossil fuel-related CO_2 emissions, is absorbed by forests each year.[77] Moreover, it is estimated that nearly two billion hectares of degraded land across the world—an area the size of the entire continent of South America—offer opportunities for forest restoration.[78] Countries around the world are recognizing this climate mitigation potential. In July 2019, Ethiopia planted 350 million trees in one day, the largest one-day tree-planting effort in history, with the goal of combating deforestation and global warming.[79] China has plans to plant new forests covering an area the size of Ireland.[80]

Other landscapes and habitats, such as wetlands and grasslands, are also effective carbon sinks. Coastal and

64. *Lands of Opportunity: Unleashing the Full Potential of Natural Climate Solutions*, The Nature Conservancy, Nov. 2017, at 11, https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_NCS_LandsofOpportunity_2017.pdf.
65. *Id.* at 10; *Natural Climate Solutions*, *supra* note 5; Gustin, *supra* note 5.
66. *Natural Climate Solutions*, *supra* note 5; Gustin, *supra* note 5.
67. *Lands of Opportunity*, *supra* note 64, at 22. Only 76 countries, however, plan to use nature-based solutions to reduce emissions and more than 60 of those countries that signed on to the Paris Agreement exclude nature-based solutions from their naturally determined contributions entirely. Sophie Yeo, *Why Aren't We Using Nature to Fight Climate Change?*, Pac. Standard, Feb. 26, 2019, https://psmag.com/environment/why-arent-we-using-nature-to-fight-climate-change.
68. *Lands of Opportunity*, *supra* note 64, at 12; Fargione et al., *supra* note 4; Gustin, *supra* note 5.
69. Gustin, *supra* note 5.
70. *Id.*; Fargione et al., *supra* note 4, at 1.
71. Arneth, *supra* note 33, at 4, 7; *Forests and Climate Change*, IUCN, https://www.iucn.org/resources/issues-briefs/forests-and-climate-change (last visited Dec. 19, 2019).
72. Umair Irfan, *Restoring Forests May Be One of Our Most Powerful Weapons in Fighting Climate Change*, Vox, July 5, 2019, https://www.vox.com/2019/7/4/20681331/climate-change-solutions-trees-deforestation-reforestation.
73. *Id.*
74. *Id.*
75. Fargione et al., *supra* note 4, at 3.
76. *Lands of Opportunity*, *supra* note 64, at 11; Fargione et al., *supra* note 4, at 3; *see generally* Climate Change for Forest Policymakers—An Approach for Integrating Climate Change Into National Forest Policy in Support of Sustainable Forest Management (FAO, 2018), http://www.fao.org/3/CA2309EN/ca2309en.pdf.
77. *Forests and Climate Change*, *supra* note 71.
78. *Id.*
79. Palko Karasz, *Ethiopia Says It Planted Over 350 Million Trees in a Day, a Record*, N.Y. Times, July 30, 2019, https://www.nytimes.com/2019/07/30/world/africa/ethiopia-tree-planting-deforestation.html.
80. David Stanway, *China to Create New Forests Covering Size of Ireland: China Daily*, Reuter, Jan. 4, 2018, https://www.reuters.com/article/us-china-environment-forest/china-to-create-new-forests-covering-area-size-of-ireland-china-daily-idUSKBN1EU02L; John Vidal, *A Eureka Moment for the Planet: We're Finally Planting Trees Again*, Guardian, Feb. 13, 2018, https://www.theguardian.com/commentisfree/2018/feb/13/worlds-lost-forests-returning-trees.

marine ecosystems, such as mangroves, seagrasses, and marshes, remove carbon from the atmosphere by storing it in roots and soil, where it is known as "blue carbon."[81] There is a significant opportunity to mitigate climate change by maximizing blue carbon. In fact, coastal landscapes sequester more carbon per unit area than terrestrial forests.[82] Grasslands, landscapes dominated by non-woody vegetation, such as tall-grass prairie, are also well known for their ability to absorb and store carbon in roots and soil.[83] Some studies have even estimated that they have more potential for storing carbon than terrestrial forests because they are less susceptible to wildfires and drought.[84]

Wildlife conservation is also a natural climate solution. Habitats that are critical for wildlife protection such as forests, wetlands, and grasslands also function as carbon sinks. Yet, very few of these areas are protected. As natural habitats are converted from large intact landscapes to agricultural land and urban development, carbon that was previously stored in plants and soils is released into the atmosphere and limits the capacity of the land to store carbon.[85] At the same time, it destroys habitat for wildlife species. Therefore, policies that protect and conserve wildlife can also function as meaningful nature-based climate solutions. Moreover, many of these policies already exist. The ESA, for example, is one of the strongest conservation laws ever enacted in U.S. history. If advocates and policymakers used it as a climate mitigation resource, it could have significant potential to limit GHG emissions.

IV. A Review of the Endangered Species Act and Climate Change

The ESA was successfully used to protect species from climate change for the first time in 2008, when conservationists petitioned for the polar bear to be listed under the Act, arguing that rising global temperatures put the bears' habitat at risk.[86] Polar bears live on ice year-round and depend on it to hunt, breed, and den.[87] Environmental groups initially petitioned to have the polar bear listed as threatened due to global warming in 2005.[88] When the U.S. Fish and Wildlife Service (FWS) decided not to list the polar bear, the groups filed a lawsuit against the agency.[89] The parties settled after FWS agreed to issue a proposed rule by the end of the year.[90] FWS failed, however, to meet the required deadline, prompting environmental advocates to again file suit.[91] A federal judge held that FWS violated the ESA by delaying its decision on the polar bear and ordered the agency to make a decision by May 2008.[92] The agency complied with the court order and determined the polar bear warranted ESA protections, making it the first species to be listed as threatened with endangerment under the ESA due to climate change.[93]

In listing the polar bear, FWS addressed the consequences of climate change head on. Much of the agency's written rationale in listing the species cited declining sea ice due to climate change and other effects of carbon pollution.[94] The agency determined that polar bears are evolutionarily adapted to life on sea ice and rely on it for resting, breeding, and hunting.[95] It further determined that all polar bear populations will be affected by the loss of sea ice within the "foreseeable future" and that this loss of critical habitat "threaten[s] the species throughout all of its range."[96] The polar bear has since become the poster species for climate change and a symbol of the threats global warming poses to wildlife across the world.[97]

Since then, there have been more than 100 ESA lawsuits citing climate change.[98] Ringed and bearded seals, for example, are the subject of a lawsuit filed by environmental advocates to compel the designation of critical habitat, as the sea ice they depend on to survive melts.[99] Both seals are listed as threatened under the ESA, yet the National Marine Fisheries Service (NMFS)[100] has failed to provide the habitat protection the law requires.[101] Another example is a lawsuit filed by environmentalists to list emperor penguins as endangered, arguing that the climate crisis has already inflicted suffering and death on the species and protecting them from further dangers of climate change

81. *Blue Carbon: Mitigating Climate Change Along Our Coasts*, Conservation Int'l, https://www.conservation.org/projects/blue-carbon (last visited Dec. 19, 2019); *Blue Carbon for Climate Mitigation*, Nat'l Geo. Blog (Dec. 15, 2016), https://blog.nationalgeographic.org/2016/12/15/blue-carbon-for-climate-mitigation/.
82. *Blue Carbon*, IUCN, https://www.iucn.org/resources/issues-briefs/blue-carbon (last visited Dec. 19, 2019); *Blue Carbon*, *supra* note 81.
83. Kelly April Tyrrell, *Grasslands Among the Best Landscapes to Curb Climate Change*, UWMadScience, Nov. 15, 2018, https://uwmadscience.news.wisc.edu/ecology/grasslands-among-the-best-landscapes-to-curb-climate-change/.
84. Christina Nunez, *Grasslands, Explained*, Nat'l Geo., https://www.nationalgeographic.com/environment/habitats/grasslands/.
85. *Lands of Opportunity*, *supra* note 64, at 10.
86. Jennifer Hijazi, *Climate Change Looms Large in Endangered Species Litigation*, E&E News, July 2, 2019, https://www.eenews.net/climatewire/2019/07/02/stories/1060682935; *see generally* Center for Biological Diversity v. Kempthorne, No. 2008 WL 1902703 (N.D. Cal. Apr. 28, 2008).
87. Kellman, *supra* note 36, at 4.
88. Hijazi, *supra* note 86.
89. Michael C. Blumm & Kya B. Marienfeld, *Endangered Species Act Listings and Climate Change: Avoiding the Elephant in the Room*, 20 Animal L. 277, 283 (2014).
90. *Id.* at 284.
91. *Id.*
92. *Id.*
93. *Id.*; Kellman, *supra* note 36, at 4.
94. Blumm & Marienfeld, *supra* note 89, at 285.
95. *Id.* at 286.
96. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Polar Bear (Ursus Maritimus) Throughout Its Range, 73 Fed. Reg. 28212-01 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17) [hereinafter *Endangered and Threatened*]; Kellman, *supra* note 36, at 4.
97. Blumm & Marienfeld, *supra* note 89, at 284.
98. Hijazi, *supra* note 86.
99. Press Release, Center for Biological Diversity, Lawsuit Launched to Protect Arctic Habitat of Endangered Ice Seals (Mar. 14, 2019), https://www.biologicaldiversity.org/news/press_releases/2019/bearded-and-ringed-seals-03-14-2019.php [hereinafter *Protect Arctic Habitat*]; *see generally* Center for Biological Diversity v. Ross, No. 2019 WL 2498647 (D. Alaska Oct. 31, 2019) (Complaint for Declaratory and Injunctive Relief), http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2019/20190613_docket-319-cv-00165_complaint.pdf [hereinafter *CBD v. Ross*].
100. FWS and the NMFS share responsibility for administering the ESA. FWS has primary responsibility for terrestrial and freshwater species, while NMFS has responsibility for marine wildlife. *Endangered Species Act Overview*, U.S. FWS, https://www.fws.gov/endangered/laws-policies/ (last visited Dec. 24, 2019).
101. *Protect Arctic Habitat*, *supra* note 99.

is necessary for their survival.[102] Emperor penguins rely on sea ice for breeding and raising their young, and in areas where sea ice is disappearing, penguin populations are declining significantly.[103]

Some of these species are less charismatic than polar bears and emperor penguins, yet no less worthy of protection. The lesser prairie chicken, for example, a striped white and brown grouse found in the Southwest region of the United States, is a species that once numbered in the millions but now just 40,000 remain across less than 17% of its original range.[104] Wildlife conservation organizations filed suit against FWS, seeking protections for the bird, citing threats from climate change and fossil fuel extraction.[105] The yellow banded bumblebee, western glacier stonefly, and the Miami tiger beetle are all examples of other often overlooked but invaluable species that are the subjects of a lawsuit filed by conservationists advocating for ESA protections due, in part, to climate change.[106]

Just recognizing the ecological threat that climate change poses to biodiversity and species survival has altered the relationship between climate change and ESA policy. Nevertheless, while the ESA has increasingly been used as a resource to protect species from the *impacts* of climate change, it has not been as widely considered a resource to protect species with respect to *mitigating* climate change. The failure to mitigate climate change through the ESA originates from the polar bear listing in 2008. At the same time the agency granted the historic listing of the polar bear, it also effectively barred its ability to protect the species from the very dangers that put the species at risk. When protecting the polar bear under the ESA because of climate change, FWS stated that "the ESA was not the right tool to set U.S. climate policy or regulate GHG emissions."[107] Despite noting how climate change and disappearing sea ice threatens the species and stating that "[c]ontinued warming will lead to reduced numbers and reduced distribution of polar bears range-wide," the agency made clear that the ESA is not the right tool to regulate the carbon pollution causing warming temperatures.[108] Although there is merit to the agency's point that a comprehensive climate change law could regulate emissions more directly and effectively than the ESA, such a law does not exist and the ESA has the authority and, moreover, the responsibility to address these issues to protect threatened and endangered species from harms and adverse impacts if other legislation falls short.

The ESA aids species recovery in several ways, including what is known as the §7 consultation process and the §9 take prohibition.[109] The §7 consultation process requires federal agencies, in consultation with the listing agency—either FWS or NMFS—to ensure that actions they authorize, fund, or carry out are "not likely to jeopardize the continued existence" of any listed species or result in the destruction of the species' critical habitat.[110] The take prohibition in §9 prohibits any action that causes a "taking" of any listed species, which among other things, includes causing "harm" to the species.[111]

The agency primarily blamed the inability to regulate GHG emissions on a lack of a clear causal connection between GHGs emitted outside of the polar bear's range and the effects that contribute to the polar bear's habitat loss.[112] According to the agency, §7 consultations must demonstrate a direct causal connection between the action under consultation and the adverse effects on a listed species.[113] Therefore, federal projects would not trigger §7 consultation with respect to GHG emissions unless it could be established that adverse effects on the species were reasonably certain to occur.[114] The problem for the agency was: how can the government identify a specific adverse effect on a species or habitat from an individual GHG emitter?[115]

In the press conference announcing the agency's decision to list the species, then-Secretary of the U.S. Department of the Interior (DOI) Dirk Kempthorne made clear that the answer was simply that it could not attribute harm to a specific species from a global emissions source. Kempthorne stated that the decision to list the polar bear as a threatened species was particularly difficult because for most species, "we can identify a localized threat, but the threat to the polar bear comes from global influences on sea ice."[116] Moreover, the agency noted that although the polar bear's listing recognizes the impacts of climate change, it does not assign blame for warming temperatures on anyone in particular.[117]

102. Center for Biological Diversity v. Bernhardt, No. 1:19-cv-02282 (D.D.C. July 31, 2019) (Complaint for Declaratory and Injunctive Relief), https://www.courthousenews.com/wp-content/uploads/2019/07/emperor-penguin.pdf [hereinafter *CBD v. Bernhardt*]; Press Release, Center for Biological Diversity, Lawsuit: Trump Is Failing to Protect Emperor Penguins From Climate Crisis (July 31, 2019), https://biologicaldiversity.org/w/news/press-releases/lawsuit-trump-failing-protect-emperor-penguins-climate-crisis-2019-07-31/ [hereinafter *Failing to Protect*]; Jennifer Hijazi, *Greens Sue Over Climate Threats to Penguins*, E&E News, Aug. 1, 2019, https://www.eenews.net/climatewire/2019/08/01/stories/1060818875 [hereinafter *Hijazi II*].
103. *Bernhardt*, No. 1:19-cv-02282 *supra* note 102; *Hijazi II*, *supra* note 102.
104. Press Release, Center for Biological Diversity, Lawsuit Launched to Protect Imperiled Lesser Prairie Chicken (Feb. 14, 2019), https://www.biologicaldiversity.org/news/press_releases/2019/lesser-prairie-chicken-02-14-2019.php [hereinafter *Launched to Protect*]. In 2014, FWS listed the bird as threatened but protection was overturned on procedural grounds after a lawsuit from the Permian Basin Petroleum Association and four counties. The primary causes of the species' habitat loss are oil and gas development, cropland conversation, livestock grazing, and roads and powerlines. Climate change is another threat to the species' survival. In 2011, ground temperatures exceeded 130 degrees Fahrenheit, a threshold above which lesser prairie chicken eggs cannot survive.
105. Launched to Protect, *supra* note 104 (petitioners in the case are: WildEarth Guardians; Defenders of Wildlife; and the Center for Biological Diversity); Hijazi, *supra* note 86.
106. Rich Hatfield et al., *Yellow-Banded Bumblebee, Bombus Terricola*, The IUCN Red List of Threatened Species (2015), https://www.iucnredlist.org/species/44937505/46440206; *see generally Bernhardt*, 1:19-cv-01071.
107. Press Release, U.S. DOI, Secretary Kempthorne Proposes Narrow Changes to ESA Consultation Process (Aug. 11, 2008), https://www.doi.gov/sites/doi.gov/files/archive/news/archive/08_News_Releases/080811a.html; Hijazi, *supra* note 86.
108. Blumm & Marienfeld, *supra* note 89, at 287-88; Larry Greenemeier, *U.S. Protects Polar Bears Under Endangered Species Act*, Sci. Am., May 14, 2008, https://www.scientificamerican.com/article/polar-bears-threatened/.
109. 16 U.S.C. §§1536, 1538 (2018).
110. *Id.* §1536.
111. *Id.* §1538.
112. Blumm & Marienfeld, *supra* note 89, at 290.
113. *Id.* at 290-91; Endangered and Threatened, *supra* note 96.
114. Blumm & Marienfeld, *supra* note 89, at 291.
115. *Id.* at 293.
116. Greenemeier, *supra* note 108.
117. *Id.*

Shortly after the announcement, in December 2008, the agency published a rule effectively barring FWS from regulating GHGs to protect polar bears and their habitat.[118] In a press release announcing the new rule, the agency stated that

> [t]he proposed rule is consistent with the FWS' current understanding that it is not possible to draw a direct causal link between GHG emissions and distant observations of impacts affecting species. As a result, it is inappropriate to consult on a remote agency action involving the contribution of emissions to global warming because it is not possible to link the emissions to impacts on specific listed species such as polar bears.[119]

In making this decision, the agency effectively exempted the very reasons it gave for listing the species in the first place from any regulation under the ESA.[120] Then-Representative Markey, who at the time served as the chairman of the House Select Committee on Energy Independence and Global Warming, responded to the decision by stating that the agency "simultaneously announced a rule aimed at allowing oil and gas drilling in the Arctic to continue unchecked even in the face of the polar bear's threatened extinction" and described it as a "gift to Big Oil."[121] Indeed, the effect of the rule promulgated by FWS is that the agency can recognize the dangers climate change is causing to species but is powerless to do anything about it.[122]

V. Wildlife Conservation as a Natural Climate Solution

Part V addresses how wildlife conservation can serve as an effective response to climate change. It first analyzes how the ESA can be used to promote this objective and then considers possible new policies to address the climate change crisis through wildlife conservation.

A. Using the Endangered Species Act to Reduce Greenhouse Gas Emissions

The ESA is one of the strongest and most effective legislative tools available for conservation and environmental protection. Moreover, the very purpose of the law is to provide protections for species threatened by extinction. FWS should modify the current policy in order to effectively carry out the mission of the law. If the agency fails to take action on its own, Congress should enact legislation that explicitly directs it to do so.

Specifically, FWS should expand the take prohibition in §9 of the law to include new and existing sources of GHG emissions and interpret §7 to require new federal sources of GHGs to undergo species-specific consultation.[123] For example, if a species is listed as endangered because of climate change, which is caused by GHG emissions, the ESA and its §7 consultation provision should require agencies to consult with FWS when permitting or approving projects that would result in increased GHG emissions.[124] FWS should then be required to consider the impacts of that project on the affected species and take steps to mitigate those impacts.[125] If the agency were to adopt this new policy, the ESA would not only be able to function as intended by protecting endangered species from the threats to their survival, but would also fundamentally function as a means of climate mitigation.

Regulating GHG emissions under the ESA would require a change in policy, and therefore action by the agency or Congress. There are, however, ways the ESA can be used as a means to mitigate climate change without needing any new rules from the agency or additional authorization from Congress, such as designating critical habitat. As described above, large landscape conservation can serve as a natural climate solution by sequestering carbon in forests, wetlands, grasslands, and other natural spaces. Therefore, protecting and conserving habitat for wildlife through critical habitat designation not only protects species, but it also provides climate benefits through carbon sequestration.

When a species is listed under the ESA, the listing agency must designate critical habitat.[126] Critical habitat for a threatened or endangered species are specific areas in which there are features "essential to the conservation of the species" and "may require special management consideration or protection."[127] Under §7(2) of the ESA, every federal agency must undertake a "no jeopardy" determination to ensure that their actions do not jeopardize any listed species.[128] This includes the destruction or adverse modification of the species' habitat.[129] Therefore, avoiding adverse modification of critical habitat is an express obligation for federal agencies, providing protection for listed species and their habitats in the context of federal action.

There are two main climate benefits to critical habitat designation. First, by designating critical habitat, the government can protect natural spaces that species rely on, preventing conversion of forests and grasslands to cropland and development. This landscape conservation and restoration prevents GHG emissions from land conversion as well as allows for continued land sequestration of carbon. Designation of critical habitat in itself does not necessarily restrict further development or economic activity in the designated area and, notably, critical habitat designations

118. Todd Woody, *Enlisting Endangered Species as a Tool to Combat Warming*, Yale Env't 360, July 22, 2010, https://e360.yale.edu/features/enlisting_endangered_species_as_a_tool_to_combat_warming.
119. Press Release, U.S. DOI, *supra* note 107.
120. Blumm & Marienfeld, *supra* note 89, at 288-89.
121. Greenemeier, *supra* note 108.
122. Blumm & Marienfeld, *supra* note 89, at 279.
123. *Id.* at 289.
124. Woody, *supra* note 118.
125. *Id.*
126. 50 C.F.R. §424.12 (criteria for designating critical habitat); Lindsay Card, *Polar Bears: Climate Refugees Expanding and Protecting Designated Critical Habitat for Polar Bears Using the Endangered Species Act*, 34 J. Land Use & Envtl. L. 169, 176 (2018).
127. 16 U.S.C. §1532 (ESA); Card, *supra* note 126; Kellman, *supra* note 36, at 3; James Ming Chen, *The Fragile Menagerie Biodiversity Loss Climate Change and the Law*, 93 Ind. L.J. 303, 333 (2018).
128. 16 U.S.C. §1536.
129. *Id.*

affect only federal agency actions of federally funded or permitted activities.[130] Critical habitat requirements do not apply to private landowners if there is no federal funding or authorization.[131] Importantly, however, it imposes a responsibility on federal agencies and officials to protect important characteristics of the area and consult with the listing agency on proposed activities to ensure that they protect critical habitat in the interest of conservation.[132]

Second, it can prevent oil and gas development in habitat designated as critical for threatened and endangered species. Returning to the polar bear as an example, in 2010, FWS designated nearly 200,000 square miles of Alaska's coast and water as critical habitat for the polar bear.[133] Following this designation, oil and gas trade associations, several Alaska Native corporations and villages, and the state of Alaska filed suit, claiming that the designation of critical habitat would deprive them of opportunities to exploit the natural resources found in the designated habitat.[134] In fact, then-Alaska Gov. Sean Parnell, said the critical habitat designation included areas that account for almost one-half of Alaska's oil production and would delay or restrict petroleum exploration and development.[135] Kara Moriarty, then-deputy director of the Alaska Oil and Gas Association perhaps said it best when she said that oil and gas "companies and the industry will be required to go through more permitting and create mitigation measures" as a result of the habitat designation.[136] The U.S. Court of Appeals for the Ninth Circuit ruled in favor of FWS, upholding the critical habitat designation and stating that the point of the ESA is to ensure species' recovery and, therefore, habitat necessary to species recovery should not be excluded.[137]

Perhaps, no species better illustrates the impacts the ESA can have on oil and gas development than the sage grouse. The greater sage grouse is an iconic bird well-known for its unique mating dances and which was once found across 13 western U.S. states and numbered in the tens of millions.[138] Today, because of oil and gas development, land conversion, and climate change, sage grouse inhabit just half of their historic range and their population is thought to be less than 10% of what it was in the 19th century.[139] Yet, the species has never been listed under the ESA.[140] Whether to list the species—and put other protections in place—has been an ongoing battle both in Congress and in the DOI for more than two decades.[141] Conservationists argue that the species' perilous decline warrants ESA protections, while interest groups oppose such a move, as an endangered listing would drastically limit grazing and energy development across 173 million acres of public, state, and private land in the western United States.

In 2015, the Obama Administration reached a compromise with western states and landowners, agreeing not to list the species under the ESA but putting a protective management plan in place to protect key sage grouse habitat, with the intent to reverse the bird's decline and prevent the need to list it as endangered, which might have resulted in more drastic restrictions on development.[142] Then, in March 2019, the Trump Administration rolled back the deal, releasing a new plan that eliminated critical protections for the greater sage grouse and reopened millions of acres of previously protected habitat to oil and gas drilling and leasing.[143] Conservation advocates filed suit and, in October 2019, a federal district court judge granted a preliminary injunction to suspend the rollback, reinstating the Obama-era management plan. If the sage grouse had been a listed species under the ESA, nearly 175 million acres of western landscape would not only be protected for the conservation of the greater sage grouse, it would also impose limitations on oil and gas development, reducing the potential for resulting GHG emissions.

The ESA can serve as an obstacle to fossil fuel production—and thereby limit GHG emissions—even in the absence of critical habitat designation. Two controversial natural gas pipeline projects, the Mountain Valley Pipeline and the Atlantic Coast Pipeline, are examples of fossil fuel development projects that have faced numerous legal obstacles as a result of their impacts on listed species.

The Atlantic Coast Pipeline faced a major setback in July 2019, when the U.S. Court of Appeals for the Fourth Circuit struck down a key permit issued for the

130. *Critical Habitat: What Is It?*, U.S. FWS (Mar. 2017), https://www.fws.gov/endangered/esa-library/pdf/critical_habitat.pdf; *Critical Habitat*, NOAA Fisheries, https://www.fisheries.noaa.gov/national/endangered-species-conservation/critical-habitat (last visited Dec. 19, 2019); Jacob W. Malcom & Ya-Wei Li, *Data Contradict Common Perceptions About a Controversial Provision of the U.S. Endangered Species Act* (PNAS, 2015), https://defenders.org/sites/default/files/publications/section-7-pnas.pdf (finding that after analyzing "all 88,290 consultations recorded by FWS from January 2008 through April 2015 . . . no project was stopped or extensively altered as a result of FWS finding jeopardy or adverse modification during this period").

131. *Id.*

132. *Critical Habitat: What Is It?*, *supra* note 130.

133. Specifically, the agency designated 187,157 square miles of habitat in Alaska and adjacent water of the United States and its territories. Card, *supra* note 126, at 177; Kellman, *supra* note 36, at 5; James Ming Chen, *supra* note 127, at 344.

134. Dan Joling, *Appeals Court Upholds Designation of Polar Bear Habitat*, ABC News, Feb. 29, 2016, https://www.biologicaldiversity.org/news/center/articles/2016/abc-news-02-29-2016.html; Kellman, *supra* note 36, at 5.

135. Joling, *supra* note 134.

136. Associated Press, *US Sets Aside "Critical Habitat" for Polar Bear in Alaska*, Guardian, Nov. 25, 2010, https://www.theguardian.com/environment/2010/nov/25/polar-bear-alaska-critical-habitat. Kara Moriarty is now president and CEO of the Alaska Oil and Gas Association. Alaska Oil & Gas Ass'n, *Staff Bios*, https://www.aoga.org/about/staff-bios (last visited Sept. 15, 2019).

137. Joling, *supra* note 134; Kellman, *supra* note 36, at 6.

138. *Greater Sage-Grouse*, World Wildlife Fund, https://www.worldwildlife.org/species/greater-sage-grouse (last visited Dec. 19, 2019); Press Release, Center for Biological Diversity, Trump Administration Slashes Sage Grouse Protection (Mar. 15, 2019), https://www.biologicaldiversity.org/news/press_releases/2019/greater-sage-grouse-03-15-2019.php [hereinafter Administration Slashes Sage]; Hannah Nordhaus, *An Iconic Bird Just Lost Important Habitat Protections: What It Means*, Nat'l Geo., Mar. 21, 2019, https://www.nationalgeographic.com/environment/2019/03/sage-grouse-rule-rollback-conservation/.

139. *Greater Sage-Grouse*, *supra* note 138; Douglas Main, *How One Odd Bird Embodies the Endangered Species Act Debate*, Nat'l Geo., July 23, 2018, https://www.nationalgeographic.com/animals/2018/07/american-west-sage-grouse-sagebrush-sea-fate/.

140. Main, *supra* note 139.

141. Nordhaus, *supra* note 138.

142. Administration Slashes Sage, *supra* note 138; Main, *supra* note 139; Nordhaus, *supra* note 138.

143. *Id.*

project's construction for failing to adequately protect multiple endangered and threatened species in the path of the 605-mile pipeline project.[144] Four species were the subject of the decision: (1) the rusty patched bumble bee; (2) the clubshell (a mussel); (3) the Indiana bat; and (4) the Madison Cave isopod (a crustacean). The court held that "[i]n fast tracking its decisions, the agency appears to have lost sight of its mandate under the ESA: 'to protect and conserve endangered and threatened species and their habitats."[145]

The Mountain Valley Pipeline is also currently on hold while the pipeline developers and federal officials consider the pipeline's impacts on five threatened or endangered species that inhabit areas along the pipeline's path: (1) the Roanoke logperch; (2) the Indiana and northern long-eared bats; (3) the small whorled pogonia; (4) the Virginia spiraea; and (5) the candy darter (a fish species that was designated as endangered after FWS' initial biological opinion).[146] In August 2019, environmental groups filed a lawsuit challenging an approval of the pipeline issued by FWS, asking the agency to reevaluate the pipeline's effects on wildlife.[147] Just days later, developers announced construction on the pipeline would stop in "areas along the route that may have an impact related to the [ESA]."[148]

When used strategically, the ESA can be a valuable resource to meaningfully contribute to mitigating climate change. To meet the overwhelming challenge of solving the climate crisis, aggressive and ambitious legislation will be necessary. In the ESA, such a law already exists. If used to protect species from increased GHG emissions and oil and gas development as well as to conserve natural spaces for species habitat, the ESA could not only combat the unprecedented threat climate changes poses to biodiversity, habitats, and wildlife but it could also be a powerful natural climate solution.

144. Defenders of Wildlife v. Department of the Interior, 931 F.3d 339 (4th Cir. 2019); Michael Martz, *Federal Court Strikes Down Fish and Wildlife Permit for Atlantic Coast Pipeline*, Richmond Times-Dispatch, July 26, 2019, https://www.richmond.com/news/virginia/government-politics/federal-court-strikes-down-fish-and-wildlife-permit-for-atlantic/article_c5c40622-f38c-59a3-a248-f16d1c50ed44.html; Sarah Rankin, *Appeals Court Vacates Key Atlantic Coast Pipeline Permit*, AP News, July 26, 2019, https://www.apnews.com/a7943d742a2e417ba606b297d4a74689.
145. *Id.*
146. Laurence Hammack, *Mountain Valley Pipeline Faces New Legal Challenge, This One Over Endangered Species*, Roanoke Times, Aug, 12, 2019, https://www.roanoke.com/business/mountain-valley-pipeline-faces-new-legal-challenge-this-one-over/article_569ed8b1-fc59-5749-a2ee-4219635980b1.html.
147. Associated Press, *New Lawsuit Filed Over Mountain Valley Pipeline*, West Va. Pub. Broadcasting, Aug. 13, 2019, https://www.wvpublic.org/post/new-lawsuit-filed-over-mountain-valley-pipeline#stream/0. In August 2019, the Federal Energy Regulatory Commission (FERC) announced that it plans to reconsider FWS' review of endangered species protections, asking the agency to reinitiate consultation on the four affected species. FERC's reconsideration appears to be in large part because of a change in the status of the candy darter, which has since been listed under the ESA and is known to inhabit streams in the project area. Jeremy Dillon, *FERC Wants Biologists to Revisit Review of Pipeline Project*, E&E News, Aug. 28, 2019, https://www.eenews.net/greenwire/stories/1061110615/search?keyword=mountain+valley+pipeline.
148. Letter from the James Martin, Chief, Division of Gas, Environment and Engineering, FERC, to Cindy Shulz, Field Supervisor, U.S. FWS (Aug. 28, 2019), https://www.eenews.net/assets/2019/08/29/document_gw_32.pdf.

B. *New Policies to Address the Climate Crisis Through Wildlife Conservation*

The ESA is just one possible means of mitigating climate change through wildlife conservation. Congress should enact additional legislation that is not only necessary to protect wildlife but can also contribute to solving the climate crisis. At a time when the tides might be shifting with respect to climate change policy in the United States, lawmakers should be considering all the tools available to reduce GHGs in the atmosphere.

The Wildlife Corridors Conservation Act, for example, is a bipartisan[149] bill that would establish a National Wildlife Corridors System and grant federal agencies the authority to designate wildlife corridors.[150] Wildlife corridors protect and restore species through habitat connectivity, which facilitates migration, range expansion, and mating, and are growing increasingly important in the face of climate change as habitats shift and shrink.[151] There is a broad coalition of support for the bill, including conservationists, outdoor recreation companies, and scientists, including Dr. E.O. Wilson who, at a press conference on the bill, said that "[t]he National Wildlife Corridors Conservation Act would provide the most important step of any single piece of legislation at the present time in enlarging the nation's protected areas and thereby saving large swaths of America's wildlife and other fauna and flora."[152]

Connecting wildlife habitat is critical to conserving biodiversity. Wildlife corridors benefit all wildlife and are essential for numerous species' continued survival. Florida panthers, for example, need wildlife corridors to connect protected areas for dispersal and to find mates while allowing the cats to avoid dangerous roads and densely populated cities and towns.[153] Pronghorn antelope migrate 150 miles each winter from Wyoming's Upper Green River Basin to feeding grounds in Grand Teton National Park; however, roads, fences, and human development stand in its path.[154] Monarch butterflies travel 3,000 miles from the eastern United States to escape winter temperatures to Mexico and

149. The 2019 House bill was introduced by Rep. Don Beyer (D-Va.) and Rep. Vern Buchanan (R-Fla.). Wildlife Corridors Conservation Act of 2019, H.R. 2795, 116th Cong. (2019); Wildlife Corridors Conservation Act of 2019, S. 1499, 116th Cong. (2019). The bill has been introduced in both the House and Senate for the last two Congresses.
150. The bill authorizes key federal agencies to designate corridors on federal lands and provides grants to fund priority projects on state, private, and tribal lands. H.R. 2795; S. 1499.
151. Gabby Saunders, *Wildlife Corridors Conservation Act of 2019 Introduced in Congress With Bi-Partisan Support Following U.N. Report on Global Biodiversity Crisis*, Wildlands Network Blog (May 16, 2019), https://wildlandsnetwork.org/blog/wildlife-corridors-conservation-act-press-release-2019/.
152. *Wildlife Corridors Conservation Act*, Wildlands Network, https://wildlandsnetwork.org/policy/wildlife-corridors-conservation-act/ (last visited Dec. 19, 2019); Chris Heltne, *Wildlife Corridors Conservation Act of 2019 Introduced in Congress*, Half-Earth Project (July 30, 2019), https://www.half-earthproject.org/wildlife-corridors-conservation-act-of-2019-introduced-in-congress/; *see also* Letter from Dr. Edward O. Wilson, Harvard Univ., to Member of Congress (May 15, 2019), https://wildlandsnetwork.org/wp-content/uploads/2019/05/Corridor-Act-20190509_2.pdf.
153. *Wildlife Corridors Conservation Act*, *supra* note 152.
154. *Id.*

southern California, relying on suitable habitat to rest, eat, and reproduce.[155]

Perhaps the most unique illustration of the need for wildlife corridors are wolverines. Wolverines are uniquely adapted, and dependent on, year-round cold weather habitats and lingering snowpack.[156] They have even been described as "a relic of the northern hemisphere's last ice age."[157] Therefore, although the survival of the species faces many threats, the most overwhelming is a warming climate.[158] FWS has resisted listing the species under the ESA since 1994, despite numerous petitions and lawsuits and the fact that fewer than 300 individuals remain in the contiguous United States.[159] Finally, in 2016, a federal judge ordered the agency to reconsider its decision, citing the growing threat of climate change.[160] Even protection under the ESA, however, may not be sufficient to save the species from extinction. Wolverines are aggressively territorial—Glacier National Park, home to the densest populations of wolverines in the contiguous United States, only has capacity for a total of 30 to 40 individuals.[161] To avoid inbreeding, individual wolverines must be able to migrate to other subpopulations, which requires wolverines separated by roads and human development to be connected to others within a larger region.[162]

In the face of a warming climate, parks, preserves, and refuges will not be sufficient to protect vulnerable species. It is also necessary to establish and maintain natural wildlife corridors that link protected areas to allow species such as wolverines to travel across large landscapes and connect fragmented populations.[163] Preserving large landscapes from development for species migration and movement also has all the climate co-benefits previously described: conservation of natural spaces allows for increased carbon sequestration and prevents further fossil fuel development. In fact, the Trump Administration has offered thousands of oil and gas leases in the western United States, nearly one in five of which is in an area identified by the states as an important migration corridor.[164] Establishing and maintaining a wildlife corridor system would restrict those oil and gas leases.

The Safeguarding America's Future and Environment (SAFE) Act is another bill that has been introduced to protect and conserve wildlife species.[165] If enacted, the SAFE Act would establish a coordinated federal approach to respond to the ongoing impacts of climate change on species by protecting, restoring, and conserving natural lands and resources.[166] Although the intended purpose of the bill is to help species adapt to the effects of climate change, it would carry the same co-benefits of the ESA and Wildlife Corridors Conservation Act to mitigate climate change as well.

The common thread that runs throughout the existing and proposed legislation aimed at protecting wildlife that also provides solutions to the climate crisis is the conservation of land, habitat, and natural areas. A federal goal of land and ocean conservation may be the most straightforward and efficient means of addressing both climate change and biodiversity loss. Indeed, some environmental advocates are proposing an ambitious plan called the "Global Deal for Nature" which calls on countries to collectively protect 30% of the earth's land and oceans by 2030[167] with the goal of safeguarding species and biodiversity, and ultimately, to mitigate climate change.[168]

This global policy proposal could be scaled to a national level, with the U.S. committing to protect 30% of its domestic land by 2030. Such a policy would stem the loss of natural lands currently taking place in the United States. In fact, the *United States is losing its remaining forests, grasslands, and natural places to development at the rate of a football field size of land every 30 seconds*.[169] Therefore, to achieve such a conservation goal, it will be necessary to both protect existing natural areas and ecosystems as well as restore degraded lands and coasts.[170] A growing consensus of advocates, scientists, and policymakers are encouraging governments to set minimum targets of protecting 30% of lands and oceans by 2030 in order to preserve biodiversity and prevent global temperatures from exceeding 1.5°C above pre-industrial levels.[171] Adopting such a policy would ensure that the United States is doing its part to achieve those goals.

155. *A Closer Look: Why Monarch Butterflies Need a National Wildlife Corridor System*, Wildlands Network, https://wildlandsnetwork.org/wp-content/uploads/2017/12/Monarch.pdf (last visited Dec. 19, 2019).
156. Douglas H. Chadwick, *As Wolverines Battle to Survive, Warming Poses a New Threat*, Nat'l Geo., July 11, 2019, https://www.nationalgeographic.com/animals/2019/07/wolverines-battling-climate-change-shrinking-north-territory-feature/#close.
157. Kellman, *supra* note 36, at 7.
158. Chadwick, *supra* note 156.
159. Kellman, *supra* note 36, at 7; Chadwick, *supra* note 156.
160. *Id.*
161. Chadwick, *supra* note 156.
162. *Id.*
163. *Id.*
164. Ryan Richards et al., *Trump Administration Is Selling Western Wildlife Corridors to Oil and Gas Industry*, Center for Am. Progress (Feb. 14, 2019), https://www.americanprogress.org/issues/green/news/2019/02/14/466218/trump-administration-selling-western-wildlife-corridors-oil-gas-industry/.
165. Safeguarding America's Future and Environment Act, H.R. 2748, 116th Cong. (2019); Safeguarding America's Future and Environment Act, S. 1482, 116th Cong. (2019).
166. *Safeguarding America's Future and Environment Act*, Defenders of Wildlife, https://defenders.org/sites/default/files/publications/defenders-safe-act-fact-sheet.pdf (last visited Dec. 19, 2019).
167. Andrew Wetzler, *To Save Our Planet: Protect 30% of Land, Oceans by 2030*, Natural Resource Def. Council (Jan. 21, 2019), https://www.nrdc.org/experts/andrew-wetzler/save-our-planet-protect-30-land-oceans-2030; BirdLife Int'l et al., *Joint Statement on Post-2020 Global Biodiversity Framework*, https://presspage-production-content.s3.amazonaws.com/uploads/1763/jointstatement-905923.pdf?10000; *see also* Stephen Leahy, *Half of All Land Must Be Kept in a Natural State to Protect Earth*, Nat'l Geo., Apr. 19, 2019, https://www.nationalgeographic.com/environment/2019/04/science-study-outlines-30-percent-conservation-2030/.
168. Jeff Tollefson, G*lobal Deal for Nature Fleshed Out With Specific Conservation Goals*, Nature, Apr. 19, 2019, https://www.nature.com/articles/d41586-019-01253-z.
169. Matt Lee-Ashley, *How Much Nature Should America Keep?*, Center for Am. Progress (Aug. 6, 2019), https://www.americanprogress.org/issues/green/reports/2019/08/06/473242/much-nature-america-keep/.
170. *Id.*
171. *Id.*; Jonathan Bailie & Ya-Ping Zhang, *Space for Nature*, American Ass'n for the Advancement of Sci., Sept. 14, 2019, at 361, https://science.sciencemag.org/content/361/6407/1051?ijkey=a76486dbedbae03b94b4ae7de8430f201d41fc6a&keytype2=tf_ipsecsha.

VI. Conclusion

Climate change has been a key aspect of wildlife conservation policy since at least 2008; however, the federal government has been clear that although some species are at risk of extinction due to warming temperatures, it is powerless to do anything about it.[172] Wildlife protection has, therefore, been completely absent from climate change mitigation legislation and regulation. At the same time, the federal government has failed to enact any comprehensive or meaningful policy to regulate GHG emissions or act on climate change, leaving a gaping hole in U.S. policy with no mechanism to achieve necessary emissions reduction targets.

To meet the global target of limiting warming to 2°C, the United States must take action quickly. While transitioning to zero-carbon energy sources will be required, nature-based climate solutions have the ability to sequester up to one-fifth of the net annual GHG emissions annually in the United States and will be essential to avoiding the worst consequences of climate change.[173] Indeed, the restoration and conservation of landscapes such as forests, grasslands, and wetlands sequester substantial amounts of carbon and prevent land-based emissions.[174] By aggressively enforcing the ESA and enacting additional policies to protect habitat and natural spaces, wildlife conservation policy can play a key role in protecting large landscapes and habitats to mitigate climate change.

The ESA, for example, is a powerful conservation law with a mission to protect threatened and endangered species from extinction. This mission puts a responsibility on the federal government to prohibit actions that will increase warming in order to avoid harm and adverse impacts to species threatened by climate change. Although FWS has held the position that climate change is a significant threat to some threatened and endangered species for over a decade, it has maintained that it is not the right tool to regulate GHG emissions and has therefore abdicated its responsibility to protect those species.[175] If the agency does not change this policy, Congress should direct it to do so. Specifically, new and existing sources of GHG emissions should be subject to the law's take prohibition and new federal permits for and sources of emissions should be required to undergo the required species-specific consultation process for federal actions.[176]

Protecting habitat from development is also critical to both protecting species and mitigating climate change. Designating critical habitat under the ESA allows the responsible agencies to prevent natural spaces from being converted to development and therefore releasing stored carbon into the atmosphere and reducing the capacity for those landscapes to sequester carbon. It can also prevent oil and gas development in those areas, limiting the potential for fossil fuel production and the resulting carbon emissions. Nevertheless, critical habitat designation by itself will not be sufficient. New policies should be enacted to prevent biodiversity loss and increase large landscape conservation to mitigate climate change. The National Wildlife Corridors Conservation Act, the Safeguarding America's Future and Environment Act, and setting a national target to protect 30% of U.S. lands and oceans are all policy proposals that would help achieve these goals.

Wildlife conservation is a meaningful natural climate solution and should be utilized to maximize its climate mitigation potential. Protecting wildlife populations from habitat loss and global warming is critical to limit impacts on biodiversity and species extinction. At the same time, those habitats, such as forests, grasslands, and other natural areas have the potential to sequester significant amounts of carbon and mitigate climate change. Aggressive and ambitious wildlife conservation policies are not only critical to combat the unprecedented threat climate changes poses to wildlife, but can also be a powerful natural climate solution and play a key role in avoiding the most catastrophic consequences of climate change.

172. Press Release, U.S. DOI, *supra* note 107; Blumm & Marienfeld, *supra* note 89, at 279.
173. Fargione et al., *supra* note 4, at 1.
174. *Id.*
175. Press Release, U.S. DOI, *supra* note 107; Blumm & Marienfeld, *supra* note 89, at 279.
176. Blumm & Marienfeld, *supra* note 89, at 289.

IN CASE YOU MISSED IT . . .

In the Courts

"In the Courts" contains full summaries of court cases reported in *ELR Update* during the month of April 2020. They are listed under the following categories: Air, Climate Change, Energy, Governance, Natural Resources, Toxic Substances, Waste, Water, and Wildlife. The summaries are then arranged alphabetically by case name within each category. To access *ELR*'s entire collection of court cases and summaries, visit https://www.elr.info/judicial.

AIR

Natural Resources Defense Council v. Wheeler, No. 18-1172, 50 ELR 20082 (D.C. Cir. Apr. 7, 2020). The D.C. Circuit vacated a 2018 EPA rule that instituted a complete vacatur of its 2015 rule blocking the use of hydrofluorocarbons as replacements for ozone-depleting substances. An environmental group argued the 2018 rule was invalid because it was a legislative rule and was thus improperly promulgated without the required notice-and-comment procedures. The court agreed, finding that because the 2018 rule had the effect of amending the 2015 rule, which was undisputedly a legislative rule, the 2018 rule was also a legislative rule subject to notice-and-comment obligations; and thus held that the Agency improperly promulgated the rule without abiding by those obligations. It therefore vacated, 2-1, the 2018 rule and remanded to EPA for further proceedings.

Sierra Club v. Environmental Protection Agency, No. 18-1167, 50 ELR 20081 (D.C. Cir. Apr. 7, 2020). The D.C. Circuit dismissed a petition to review EPA's Guidance on Significant Impact Levels (SILs) for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program, which sets numerical SILs that can be used by companies applying for PSD permits. An environmental group argued the court could and should review the guidance because it was final agency action. The court found the guidance did not impose any obligations, prohibitions, or restrictions on regulated entities, did not subject them to new penalties or enforcement risks, preserved the discretion of permitting authorities, required any permitting decision relying on the guidance to be supported with a robust record, and did not prevent challenges to individual permitting decisions; and thus was not final agency action subject to judicial review. It therefore dismissed the petition for lack of subject matter jurisdiction.

Wheelabrator Baltimore, L.P. v. Mayor and City Council of Baltimore, No. GLR-19-1264, 50 ELR 20076 (D. Md. Mar. 27, 2020). A district court granted two Baltimore solid waste incineration facilities' partial motion for summary judgment in a challenge to the Baltimore Clean Air Act (BCAA). The facilities argued the BCAA was "conflict preempted" by Maryland law because it prohibited solid waste incinerators from operating in the manner expressly authorized by the state's Title V permitting system. The court agreed, finding that the Act conflicted with state law and thus essentially invalidated the permits. By imposing emission standards, monitoring requirements, and criminal penalties that were significantly stronger than those mandated by the state, the BCAA undermined the state's authority to decide the best way to achieve compliance with NAAQS under the federal CAA. The court therefore granted the facilities' partial motion for summary judgment.

CLIMATE CHANGE

Conservation Law Foundation v. ExxonMobil Corp., No. 16-11950-MLW, 50 ELR 20067 (D. Mass. Mar. 21, 2020). A district court stayed an environmental group's climate change lawsuit against an oil company concerning a CWA permit for its petroleum storage facility in Massachusetts. The group argued that the permit required the company to consider predictable weather patterns, including flooding and severe storms caused by climate change, and that the company's failure to do so created a risk of imminent harm from the inadvertent discharge of pollutants. The company argued that these claims implicated scientific and policy issues that EPA, not the court, should decide, and thus moved to stay the case until the Agency renewed the permit. The court found that determining permit conditions were at the heart of EPA's authority under the CWA, that the company's consideration of predictable weather patterns raised issues that EPA was better equipped to decide than the courts, and that the Agency's renewal of the permit could render the group's request moot. It therefore allowed the company's motion to stay.

ENERGY

In re Joint Application of Westar Energy, Inc. and Kansas Gas and Electric Co., No. 120436, 50 ELR 20084 (Kan. Apr. 3, 2020). The Kansas Supreme Court held unlawful a rate design approved by the Kansas Corporation Commission un-

der which utilities charged residential customers generating their own electricity from a renewable source (DG customers) a higher price than they charged non-DG customers. The utilities argued that two Kansas statutes were in conflict with each other and that the more recent statute, which allowed them to charge more to DG customers, preempted the older statute, which prohibited them from doing so. The appellate court agreed, finding the two statutes conflicted and the newer statute must control because it was the latest pronouncement from the state legislature and the more specific statute. The high court reversed, finding no conflict between the two statutes because the older statute focused on the price of goods and services sold by the utilities while the more recent statute addressed rate structure rather than price. It thus concluded the rate design violated the older statute because it used a customer's DG status as a basis for charging more for the same goods and services. It therefore reversed the appellate court and remanded to the Commission for further proceedings.

LSP Transmission Holdings, LLC v. Sieben, No. 18-2559, 50 ELR 20071 (8th Cir. Mar. 25, 2020). The Eighth Circuit upheld the dismissal of a constitutional challenge to Minnesota's right-of-first-refusal (ROFR) law. An electric transmission company argued the law, which granted incumbent transmission owners an ROFR to construct, own, and maintain transmission lines that connect to their existing facilities, violated the dormant Commerce Clause by discriminating against or placing an undue burden on interstate commerce. The district court found that the law applied equally to all incumbent electric transmission owners and thus did not discriminate in favor of in-state owners or against out-of-state owners. It further found that Minnesota's interest in regulating its local electricity market outweighed any incidental effects on interstate commerce, and thus dismissed the suit. On appeal, the court found that Minnesota's decision to allow entities other than utilities, such as independent transmission companies, to qualify as incumbents did not show an intent to favor in-state interests, and thus found no discriminatory effect. It further found no evidence that the burden imposed by the law was clearly excessive in relation to Minnesota's legitimate state interests in regulating its electric industry and maintaining the status quo. The appellate court therefore affirmed dismissal.

GOVERNANCE

California v. Trump, No. 19-960 (RDM), 50 ELR 20079 (D.D.C. Apr. 2, 2020). A district court dismissed for lack of standing a lawsuit challenging the Executive Order that requires agencies to repeal two existing rules for each new rule promulgated. California, Minnesota, and Oregon argued that the order delayed or resulted in the undertaking of four rulemakings and that these agency inactions or actions would likely cause them various harms, such as threatening their coastlines with rising tides, fiscal harms resulting from avoidable car crashes, or less federal support for early education. The court found that while the states did not need to show that the agency would have reached a different decision in the absence of the alleged procedural violation, they did need to establish some causal connection between the omitted procedural step and the substantive decision at issue, and they failed to show that the Executive Order caused the relevant agency to act or decline to act. It therefore dismissed the suit for lack of standing.

Center for Biological Diversity v. Trump, Nos. 1:19-cv-00408 (TNM) and 1:19-cv-00720, 50 ELR 20080 (D.D.C. Apr. 2, 2020). A district court granted in part and denied in part the Trump Administration's motion to dismiss a challenge to its plans to fund construction of a wall along the U.S.-Mexico border. An environmental group argued that the president exceeded his authority under the National Emergency Act (NEA) when he declared a national emergency at the southern border. The court found that determining whether a crisis had reached the point of a national emergency was inherently a subjective and fact-intensive inquiry that would require the court to make integral policy choices about the country's national security, immigration, and counterdrug policies, and thus presented a non-justiciable political question. Another environmental group argued that the president unlawfully used his authority under the NEA as a political negotiating tactic. The court found that deciding whether the president's motives were pure in declaring a national emergency again raised a political question that should be left to the political branches to solve. Both groups next argued that the government violated NEPA by failing to conduct environmental impact reports, solicit public engagement, and properly coordinate between agencies. The government asserted that the court lacked jurisdiction to hear the groups' NEPA claims because the Department of Homeland Security (DHS) waived NEPA for the challenged construction. The court agreed, finding that DHS had the authority to waive NEPA's requirements. The groups also argued that the government violated several statutes related to the appropriation of funds for military construction and counterdrug activities, and that federal agencies inappropriately allocated those funds to construct barriers along the border. The government moved to dismiss the claims for failure to meet the APA's threshold requirements for review, failing to fall within the statutes' zones of interest, and failing to state claims under the APA. The court found that one of the groups' claims—that the government violated §739 of the Consolidated Appropriations Act (CAA) by using funds from other appropriations to increase funding for a "project" in the president's budget—sufficiently stated a claim, but that all other claims failed. It therefore denied the government's motion as to the CAA §739 claim, but granted as to all other claims.

Fresno, City of v. United States, No. 16-1276L, 50 ELR 20069 (Fed. Cl. Mar. 25, 2020). The Court of Federal Claims granted in part and denied in part the Bureau of Reclamation's motion to dismiss a lawsuit concerning its curtailing of water deliveries during a drought in California. The city of Fresno and irrigation districts argued that the Bureau breached its water-supply contracts with them by failing to make available

to them the water quantities that the contracts required. The Bureau contended that plaintiffs failed to state a claim for breach of contract because the contracts contained an immunity provision that shielded the Bureau from liability when it reasonably determined that the water must instead be allocated to other water users to meet its obligations to them, and it thus moved to dismiss. The court found that plaintiffs' factual allegations that the Bureau's allocation decision was arbitrary and capricious were sufficient to address the immunity provision, and thus that plaintiffs set forth sufficient facts to defeat the Bureau's motion. Plaintiffs also argued that the Bureau's failure to deliver water to them led them and their water users to suffer huge losses of crops, groundwater reserves, and water shortages and rationing, and thus effected a Fifth Amendment taking of their property for which they were owed compensation. The court found that plaintiffs did not have property interests under California law in the water supplied to them by the Bureau, and thus concluded they lacked standing to pursue their takings claim. It therefore granted the Bureau's motion to dismiss the takings claim, but denied its motion to dismiss the breach-of-contract claim.

Natural Resources Defense Council v. United States Environmental Protection Agency, No. 19-2896, 50 ELR 20078 (2d Cir. Apr. 1, 2020). The Second Circuit reversed a district court ruling that denied environmental groups' motion for summary judgment in a lawsuit seeking FOIA disclosure of an EPA computer model related to its rollback of greenhouse gas emission standards for vehicle manufacturers. The groups challenged EPA's withholding of the model pursuant to a FOIA exemption for interagency or intraagency memorandums or letters that would not be available by law to a party other than the agency in litigation. The district court found that EPA properly invoked the deliberative process privilege and properly withheld the model pursuant to the exemption. On appeal, the court found that the model provided only highly abstract insights into Agency deliberations, which were too far removed from any policy judgments to render the model deliberative, and thus that the model did not fall within the scope of the privilege. It further found that the model did not contain or expose the types of internal agency communications that courts typically recognized as posing a risk to the candor of agency discussion, and thus that disclosure of its analytical tools could not reasonably be anticipated to impair the quality of agency decisionmaking. It thus reversed the district court ruling and remanded with directions to enter judgment for the groups.

Natural Resources Defense Council v. U.S. Environmental Protection Agency, No. 19cv5174 (DLC), 50 ELR 20093 (S.D.N.Y. Apr. 15, 2020). A district court vacated EPA's 2017 directive that prohibited scientists in receipt of certain EPA grants from serving on the Agency's federal advisory committees. An environmental group argued the directive should be vacated and remanded following the court's previous ruling that granted summary judgment to the group, finding the directive was arbitrary and capricious in violation of the APA. The court found that remand and vacatur was appropriate here because EPA's deficiencies in instituting the directive—failing to articulate any reason for changing its long-standing practice of permitting grant recipients to serve on advisory committees, and providing no basis for finding that recipients suffered from bias on account of those grants—were serious, and because the consequences of vacatur were unlikely to be disruptive. It therefore vacated the directive and remanded to the Agency for further proceedings.

Union of Concerned Scientists v. Wheeler, No. 19-1383, 50 ELR 20068 (1st Cir. Mar. 23, 2020). The First Circuit reversed the dismissal of a challenge to an EPA directive that prohibits scientists in receipt of certain EPA grants from serving on the Agency's federal advisory committees. A nonprofit group argued the directive violated the Federal Advisory Committee Act (FACA) by disproportionately excluding scientists with academic and nonprofit institutions and thus skewing the composition of Agency committees in favor of regulated industries, and by creating committees that were inappropriately influenced by special interests. The district court found no objective standard to apply to determine when a committee's membership has, or has not, achieved a fair balance or whether a special interest could influence a particular committee to an inappropriate level, and thus dismissed the suit. On appeal, the court found that FACA requires EPA to maintain a fair balance on its committees and to avoid inappropriate influences by both the appointing authority and any special interest, and thus that the group's challenge was judicially reviewable. It therefore reversed the district court's dismissal and remanded for further proceedings.

WildEarth Guardians v. Chao, No. CV-18-110-GF-BMM, 50 ELR 20094 (D. Mont. Apr. 15, 2020). A district court denied summary judgment to an environmental group in a lawsuit concerning the Pipeline and Hazardous Materials Safety Administration's (PHMSA's) obligations under the Mineral Leasing Act (MLA) to inspect all pipelines on federal lands annually. The group argued the agency failed to act on the MLA obligations, in violation of §706(1) of the APA, and thus sought to compel it to perform the inspections. PHMSA countered that the group was actually challenging the adequacy of its pipeline regulations and thus that it could only challenge the agency's final action as arbitrary or capricious under APA §706(2). The court agreed, finding that the group effectively challenged the scope and details of PHMSA's regulations, and thus that the appropriate challenge to whether the agency had fulfilled its statutory duties fell under §706(2) of the APA rather than §706(1). Because the court "reluctantly" concluded that it could not compel agency action as being unlawfully withheld under §706(1) under the circumstances presented, it denied the group's motion for summary judgment and granted PHMSA's cross-motion.

NATURAL RESOURCES

Association of Irritated Residents v. California Department of Conservation, No. F078460, 50 ELR 20087 (Cal. Ct. App. Apr. 8, 2020). In an unpublished opinion, a California appel-

late court affirmed dismissal of a challenge to the Division of Oil, Gas, and Geothermal Resources' issuance of 213 permits to drill new oil wells in a California oil field. Environmental groups argued the Division failed to comply with the California Environmental Quality Act (CEQA) when it issued each of the individual permits because no CEQA exemption was available, and the Division failed in each instance to conduct any environmental review. The trial court found that rather than exercising discretion in approving the drilling of the new wells, the Division was simply checking for conformity with fixed objective standards found in the oil field's rules and regulations, and thus that issuance of the permits appeared to be ministerial and hence not subject to CEQA. The appellate court agreed, finding the Division did not exercise discretionary judgment or deliberation, but merely determined in a mechanical fashion whether there was conformity with applicable standards. It therefore affirmed the trial court's denial of the groups' petition for writ of mandate.

Atchafalaya Basinkeeper v. U.S. Army Corps of Engineers, No. 18-23-SDD-EWD, 50 ELR 20073 (M.D. La. Mar. 25, 2020). A district court denied summary judgment to environmental groups in a challenge to the U.S. Army Corps of Engineers' issuance of permits for construction of a crude oil pipeline across the Atchafalaya Basin. The groups argued that the Corps violated NEPA by failing to take a hard look at the risk of oil spills in the basin, and ignored evidence that the pipeline company's oil spill assessment was incomplete. The court found the EAs prepared for the pipeline confirmed that the Corps reviewed the data and analysis of oil spill risks in concluding that the risk of a large oil spill was minimal, and that the agency comprehensively assessed the environmental impacts of a leak or spill under a variety of circumstances. The groups also argued that the Corps violated the CWA and NEPA by ignoring indirect impacts of constructing the pipeline and failing to recognize or mitigate for significant hydrologic and sediment impacts. The court found that the Corps expressly considered and analyzed secondary impacts of the pipeline and thus complied with its CWA and NEPA obligations. It therefore denied the groups' motion for summary judgment.

Bark v. United States Forest Service, No. 19-35665, 50 ELR 20083 (9th Cir. Apr. 3, 2020). In an unpublished opinion, the Ninth Circuit held that the U.S. Forest Service's decision not to prepare an EIS for a tree-thinning project in Mount Hood National Forest was arbitrary and capricious. A district court concluded that the Service's decision was lawful and thus granted summary judgment in favor of the Service. On appeal, the court found that because the project was "highly controversial" and uncertain and because the Service failed to identify and meaningfully analyze the project's cumulative impacts, the Service's decision not to prepare an EIS was arbitrary and capricious. It therefore reversed the district court's ruling and remanded with instructions to remand to the Forest Service for preparation of an EIS.

California v. Bureau of Land Management, Nos. 18-cv-00521-HSG and 18-cv-00524-HSG, 50 ELR 20074 (N.D. Cal. Mar. 27, 2020). A district court upheld BLM's rule that repealed a 2015 rule regulating hydraulic fracturing operations on federal and tribal lands. California argued that BLM's rationale that the 2015 rule was duplicative of state and tribal regulations was negated by the agency itself when considering the same evidence during the 2015 rule's rulemaking process. The court found that BLM adequately articulated a reasoned explanation for its change in position regarding the sufficiency of the agency's preexisting regulations and state and tribal regulations for hydraulic fracturing. The state also argued that BLM arbitrarily ignored many of the benefits identified in the 2015 rule when weighing the costs and benefits of the repeal. The court found that BLM explained how the record differed from the one that existed when the agency prepared the 2015 rule, due primarily to the existence of additional state and tribal regulations, and that this explanation sufficiently considered the foregone benefit of nationwide consistency. California and environmental groups next argued that BLM violated NEPA because it failed to take a hard look at the environmental consequences of the repeal, including the impact of using waste pits instead of tanks and impacts on tribal lands generally, and failed to prepare an EIS. The court found that because enactment of the 2015 rule was enjoined before it ever went into effect, its benefits and protections remained hypothetical and unrealized at the time the repeal was promulgated, and thus concluded that BLM was not required to conduct a NEPA analysis. Finally, the groups argued that BLM violated the ESA by failing to consult with FWS prior to taking action. The court found that BLM provided a rational connection between its position that the repeal would have no effect on threatened species on BLM lands and the facts presented in the record, and thus that the agency's conclusion was neither arbitrary nor capricious. It therefore granted BLM's motion for summary judgment.

Communities for a Better Environment v. South Coast Air Quality Management District, No. B294732, 50 ELR 20086 (Cal. Ct. App. Apr. 7, 2020). A California appellate court affirmed dismissal of a challenge to the South Coast Air Quality Management District's determination that an oil refinery project would reduce air pollution. An environmental group first argued the environmental impact report (EIR) was inadequate under the California Environmental Quality Act because it used a near-peak baseline rather than an average baseline. The court found that substantial evidence supported the District's decision to use the near-peak baseline, which followed EPA's practice of using the 98th percentile baseline approach to regulate air pollution at the national level, and thus deferred to the District's decision. The group next argued the District failed to obtain information about the pre-project composition of the crude oil refinery processes by merely finding that the crude oil input would remain within the refinery's "operating envelope." The court found that input crude oil composition was immaterial to assessing the project's environmental impact and thus that there was no need for the EIR to detail such information. Lastly, the group argued the EIR failed to disclose the existing volume of crude oil the refinery processes as a whole and the refinery's unused capacity. The court found these numbers were not material to the EIR's

goal of evaluating the project's air pollution impact, and thus that the claim was invalid. It therefore affirmed dismissal.

Food & Water Watch v. United States Department of Agriculture, No. 17-1714 (BAH), 50 ELR 20077 (D.D.C. Mar. 26, 2020). A district court denied summary judgment to an environmental group in a challenge to the USDA Farm Service Agency's (FSA's) EA for a loan guarantee to construct and operate a poultry concentrated animal feeding operation (CAFO) in Maryland. The group first argued that FSA violated NEPA by improperly relying on mitigation measures found in the CAFO's draft facility design and operational plans. The court found that NEPA permitted reliance on draft mitigation plans in appropriate circumstances, and that here FSA acted reasonably in deferring to the state regarding finalization of the plans and thus reasonably relied on the CAFO's draft measures given the state's timetable. The group next argued that FSA failed to take a hard look at the CAFO's impacts on, among other things, surface water, groundwater, and air quality. The court found the agency properly relied on federal and state standards when it analyzed the impacts of surface water and groundwater, and sufficiently considered air emissions related to poultry litter and mortality management. The group also argued that FSA failed to consider an adequate range of alternatives. The court found the agency satisfied NEPA by adopting an objective that aligned with the purpose of its farm loan program and the preferences of the CAFO's owner before evaluating reasonable alternatives to the owner's proposal and ultimately finding them lacking. It therefore denied the group's motion for summary judgment.

Gulf South Pipeline Co., LP v. Federal Energy Regulatory Commission, No. 19-1074, 50 ELR 20089 (D.C. Cir. Apr. 10, 2020). The D.C. Circuit vacated FERC's refusal to allow a natural gas pipeline company to impose incremental-plus rates to cover the costs of an expansion project. The company argued that FERC should have approved the incremental-plus rates and that its failure to do so was arbitrary and capricious. The court found that the Commission's sole rationale for denying the rates—that the expansion facilities and existing facilities would be operated as a single integrated system—failed to adequately explain why this finding justified rejecting the rates, and thus that its denial of the rates was arbitrary and capricious. It therefore vacated the Commission's order as to the incremental-plus rates and remanded for further proceedings.

Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers, No. 16-1534 (JEB), 50 ELR 20070 (D.D.C. Mar. 25, 2020). A district court held that the U.S. Army Corps of Engineers must prepare an EIS for the Dakota Access Pipeline that runs from North Dakota to Illinois. Native American tribes argued that the Corps failed to comply with a previous court decision requiring it to adequately consider whether the pipeline's effects were likely to be "highly controversial," the impact of an oil spill on the tribes' fishing and hunting rights, and the environmental justice effects of the pipeline. The court found that unrebutted expert critiques regarding leak detection systems, operator safety records, adverse conditions, and worst-case discharge meant that the easement approval for the pipeline remained highly controversial under NEPA, and thus that the Corps had violated the Act by determining that an EIS was unnecessary even though one of the EIS-triggering factors was met. It therefore remanded to the Corps to prepare an EIS.

TOXIC SUBSTANCES

CITGO Asphalt Refining Co. v. Frescati, No. 18-565, 50 ELR 20075 (U.S. Mar. 30, 2020). The U.S. Supreme Court upheld an appellate court ruling that an oil refining company was responsible for $140 million in damages from a 2004 oil spill in the Delaware River. The owner of the vessel involved in the spill argued that the company it chartered to deliver crude oil from Venezuela to the company's refinery near Philadelphia had breached the safe-berth clause in the charter agreement, which required it to designate a safe berth at which the vessel could load and discharge cargo, and thus was at fault for the spill. An appellate court held that the clause embodied an express warranty of safety and that the company was liable to the owner for breaching that warranty. The company countered that the clause did not impose strict liability or liability without regard to fault, but rather imposed a mere duty of due diligence in the selection of the berth. The Supreme Court found that the plain language of the clause did not include any liability-limiting language and clearly required the company to select a safe berth, which amounted to a warranty of safety. It therefore affirmed the appellate court ruling. Sotomayor, J., delivered the opinion of the Court, in which Roberts, C.J., and Ginsburg, Breyer, Kagan, Gorsuch, and Kavanaugh, JJ., joined. Thomas, J., filed a dissenting opinion, in which Alito, J., joined.

WASTE

Waterkeeper Alliance v. Wheeler, No. 18-2230 (JDB), 50 ELR 20092 (D.D.C. Apr. 15, 2020). A district court granted in part and denied in part environmental groups' motion for summary judgment in a challenge to EPA's approval of an Oklahoma program regulating the disposal of coal combustion residuals. The groups argued that EPA failed to perform its statutory duty under RCRA to develop and publish minimum guidelines for public participation in the approval. The court found that it was unclear whether RCRA sets forth a non-discretionary duty to publish public-participation guidelines, but to the extent that it does, EPA satisfied the requirement by publishing interim final guidance on state permitting programs. The groups also argued that EPA's approval of the program was arbitrary and capricious under the APA. The court found that the program violated RCRA by permitting the continued operation of unlined impoundments, and thus that EPA's approval of this aspect of the program was arbitrary and capricious, but that the Agency's approval as to all other aspects of the program was not. It therefore vacated

EPA's approval of the program with respect to unlined surface impoundments and remanded to the Agency for further consideration, but denied the groups' motion for summary judgment with respect to all other claims.

WATER

Friends of the Capital Crescent Trail v. United States Army Corps of Engineers, No. JKB-19-106, 50 ELR 20090 (D. Md. Apr. 13, 2020). A district court upheld a CWA §404 permit the U.S. Army Corps of Engineers granted to authorize the Maryland Transit Administration (MTA) to discharge dredge and fill materials into nearby waters during construction of a light rail project, known as the Purple Line project, that would connect suburban Maryland commuters to existing transit stations that connect to Washington, D.C. A nonprofit group argued the Corps' decision to grant the permit was arbitrary and capricious because the Corps had not properly required the MTA to clearly demonstrate the unavailability of a practicable alternative with less extensive aquatic impacts. The court found the group failed to propose a superior alternative that the Corps overlooked, and that the MTA clearly demonstrated the design now under construction was the least environmentally damaging practicable alternative. It therefore denied the group's motion for summary judgment and granted the MTA's cross-motion for summary judgment.

WILDLIFE

Austin, City of v. Kinder Morgan Texas Pipeline, LLC, No. 1:20-CV-138-RP, 50 ELR 20072 (W. D. Tex. Mar. 19, 2020). A district court denied local government entities' and landowners' request to temporarily halt construction of a 430-mile natural gas pipeline in Texas. Plaintiffs argued that allowing construction without an incidental take permit under §10 of the ESA would result in an unlawful take of endangered species, such as the golden-cheeked warbler, and that the company constructing the pipeline and FWS sidestepped requirements for environmental review under NEPA. They thus sought a preliminary injunction to halt construction. The court found that despite compelling evidence related to gaps in ESA compliance, plaintiffs failed to demonstrate a reasonably certain threat of imminent harm to a protected species, and thus failed to show the irreparable harm required for a preliminary injunction. It therefore denied plaintiffs' motion for a preliminary injunction.

Center for Biological Diversity v. Ross, No. 18-112 (JEB), 50 ELR 20088 (D.D.C. Apr. 9, 2020). A district court held that NMFS violated the ESA by approving a U.S. lobster fishery without adequately considering the fishery's impact on the endangered North Atlantic right whale. Conservation groups argued the agency violated the ESA by failing to include an incidental take statement (ITS) in its 2014 biological opinion that anticipated take of the endangered whale would occur as a result of the fishery's operation. The court found that NMFS' failure to include an ITS after finding that the fishery had the potential to harm the endangered whale at more than three times the sustainable rate was a straightforward violation of the ESA, which requires an ITS when the taking of an endangered species is anticipated. It therefore granted the groups' motion for summary judgment and declared the opinion invalid.

Dallas Safari Club v. Bernhardt, No. 19-cv-03696 (APM), 50 ELR 20085 (D.D.C. Apr. 9, 2020). A district court denied a motion for a preliminary injunction in a challenge against FWS' failure to act on pending elephant trophy import permit applications. Hunting and tourism groups and elephant sport hunters sought an injunction requiring FWS to expeditiously process all pending and subsequently received applications for elephant import permits. The court found plaintiffs failed to show that FWS' inaction on the pending applications caused them irreparable harm sufficient to warrant an injunction, and that their substantial delay in seeking an injunction stood in contrast to the high bar they must clear to show such harm. It further found it particularly unwise and not in the public interest to order the expeditious processing of sport trophy permit applications at this time, given the unprecedented disruptions created by the COVID-19 pandemic and the Service's likely diminished capacity to process the applications. The court therefore denied plaintiffs' motion for a preliminary injunction.

Northern Plains Resource Council v. U.S. Army Corps of Engineers, No. CV-19-44-GF-BMM, 50 ELR 20091 (D. Mont. Apr. 15, 2020). A district court vacated a nationwide permit reissued by the U.S. Army Corps of Engineers that allowed for construction of the Keystone XL Pipeline across waterways. Environmental groups argued the reissuance violated the ESA by failing to initiate programmatic consultation. The court found that declarations made by the groups' experts and the Corps' own decision document indicated that the permit authorized discharges that "may affect" listed species and critical habitat, and thus that the Corps should have initiated §7(a)(2) consultation before it reissued the permit. The groups also argued the permit violated NEPA by failing to adequately evaluate its environmental impacts, and the CWA by authorizing activities that would cause more than minimal adverse environmental consequences. The court anticipated that ESA consultation would inform the Corps' assessments under these statutes, and thus concluded that it need not determine at this point in the litigation whether the Corps made a fully informed and well-considered decision under NEPA and the CWA when it reissued the permit. It therefore remanded the permit to the Corps for compliance with the ESA, and vacated the permit pending completion of the consultation process.

In the Federal Agencies

"In the Federal Agencies" contains summaries of notable agency activity during the month of April 2020. Citations are to the *Federal Register* (FR). Entries below are organized by Final Rules, Proposed Rules, and Notices. Within each section, entries are further subdivided by the subject matter area, with entries listed chronologically. To see *ELR*'s entire collection, visit http://elr.info/daily-update/archives.

FINAL RULES

AIR

EPA established a subcategory of certain existing electric utility steam generating units (EGUs) firing eastern bituminous coal refuse for acid gas hazardous air pollutant (HAP) emissions under NESHAPs for coal- and oil-fired EGUs, commonly known as the mercury and air toxics standards, and established acid gas HAP emission standards applicable only to the new subcategory. 85 FR 20838 (4/15/20).

EPA revised NESHAPs for hydrochloric acid production based on the source category's residual risk and technology review to add electronic reporting; address periods of startup, shutdown, and malfunction; and establish work practice standards for maintenance activities pursuant to the CAA. 85 FR 20855 (4/15/20).

EPA and the National Highway Traffic Safety Administration (NHTSA) amended carbon dioxide standards for passenger cars and light trucks with model years 2021 and later, and NHTSA amended fuel economy standards for model year 2021 and set new fuel economy standards for model years 2022-2026; the rules represent the second part of the Administration's action related to the proposed 2018 Safer Affordable Fuel-Efficient Vehicles Rule and follow the agencies' action in September 2019 to ensure one national program for automobile fuel economy and carbon dioxide emission standards by finalizing regulatory text related to preemption under the Energy Policy and Conservation Act and withdrawing a waiver previously provided to California under the CAA. 85 FR 24174 (4/30/20).

TOXIC SUBSTANCES

EPA amended the chemical data requirements (CDR) under TSCA to make regulatory updates that align with new statutory requirements of TSCA, improve the CDR data collected as necessary to support the implementation of TSCA, and potentially reduce burden for certain CDR reporters. 85 FR 20122 (4/9/20).

WATER

EPA and the Department of the Army finalized the Navigable Waters Protection Rule, which redefines the scope of waters federally regulated under the CWA; the rule marks the second and final step in a comprehensive process intended to review and revise the definition of "waters of the United States" consistent with Exec. Order No. 13778 by maintaining federal authority over those waters that Congress determined should be regulated by the federal government under its Commerce Clause powers while adhering to Congress' policy directive to preserve states' primary authority over land and water resources. 85 FR 22250 (4/21/20).

PROPOSED RULES

AIR

EPA proposed amendments to the electronic reporting requirements for NESHAPs for coal- and oil-fired electric utility steam generating units, also known as the mercury and air toxics standards. 85 FR 20342 (4/10/20).

Based on EPA's review of the air quality criteria and NAAQS for particulate matter, the Agency proposed to retain the current primary and secondary fine and coarse particulate matter NAAQS without revision. 85 FR 24094 (4/30/20).

GOVERNANCE

The Pipeline and Hazardous Materials Safety Administration seeks comment on proposed amendments to the federal pipeline safety regulations for the safety of hazardous liquid pipelines that would revise the requirements for facility response plans, revise the definition for accidents, and consider repealing, replacing, or modifying other specific provisions; the changes would be intended to reduce regulatory burdens and improve regulatory clarity without compromising safety and environmental protection. 85 FR 21140 (4/16/20).

NOTICES

ENERGY

FERC issued a policy statement that it will expeditiously review and act on requests for relief in response to the national emergency caused by COVID-19, and that it will give its highest priority to processing filings made for the purpose of assuring the business continuity of regulated entities' energy infrastructure during the pandemic. 85 FR 19465 (4/7/20).

GOVERNANCE

FEMA announced the availability of and seeks comment on its Building Resilient Infrastructure and Communities Policy, which describes a new program authorized by recent legislation that allows FEMA to set aside six percent of estimated disaster expenses for each major disaster to fund a mitigation grant program to assist states, territories, tribes, and local governments. 85 FR 20291 (4/10/20).

In the Congress

"In the Congress" covers notable environment-related activities reported in the *Congressional Record* during the month of April 2020. Entries are arranged by bill number, with Senate bills listed first. To see all environment-related bills that are introduced, reported out of committee, passed by either house, or signed by the president, including environmental treaties ratified by the Senate, visit *ELR*'s website at https://elr.info/legislative/congressional-update.

CHAMBER ACTION

GOVERNANCE

H.R. 266 (Paycheck Protection Program and Health Care Enhancement Act), introduced by Rep. Betty McCollum (D-Minn.) on January 8, 2019, was passed by the Senate on April 21, 2020, and the House on April 23, 2020. The bill would provide additional funding for small business loans, health care providers, and COVID-19 testing in response to the COVID-19 pandemic. 166 Cong. Rec. S2183-86 (daily ed. Apr. 21, 2020), 166 Cong. Rec. H1954-55 (daily ed. Apr. 23, 2020).

BILLS INTRODUCED

CLIMATE CHANGE

H.R. 6606 (Clean Skies Act) was introduced by Rep. Mike Levin (D-Cal.) on April 23, 2020. The bill would require the Administrator of EPA to promulgate regulations establishing greenhouse gas emission standards for aircraft. It was referred to the Committee on Energy and Commerce. 166 Cong. Rec. H1956 (daily ed. Apr. 23, 2020).

GOVERNANCE

H.R. 6467 (Coronavirus Community Relief Act) was introduced by Rep. Joe Neguse (D-Colo.) on April 7, 2020. The bill would provide for an enhanced coronavirus relief fund for units of government with a population of 500,000 or less. It was referred to the Committee on Oversight and Reform. 166 Cong. Rec. H1878 (daily ed. Apr. 7, 2020).

NATURAL RESOURCES

H.R. 6465 was introduced by Rep. Jenniffer Gonzalez-Colon (R-P.R.) on April 7, 2020. The bill would waive certain provisions in the case of an emergency declaration under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. It was referred to the Committee on Transportation and Infrastructure. 166 Cong. Rec. H1878 (daily ed. Apr. 7, 2020).

H.R. 6488 (Streamlining Permitting to Enable Efficient Deployment of Broadband Infrastructure Act of 2020) was introduced by Rep. John Shimkus (R-Ill.) on April 10, 2020. The bill would amend the Communications Act of 1934 to provide that the Federal Communications Commission is not required to perform any review under NEPA or Division A of Subtitle III of Title 54, U.S. Code, as a condition of permitting the placement and installation of a communications facility. It was referred to the Committee on Energy and Commerce and the Committee on Natural Resources. 166 Cong. Rec. H1882 (daily ed. Apr. 10, 2020).

WATER

H.R. 6622 (Assuring Quality Water Infrastructure Act) was introduced by Rep. David McKinley (R-W. Va.) on April 24, 2020. The bill would amend the SDWA to establish a grant program for improving operational sustainability of small public water systems. It was referred to the Committee on Energy and Commerce. 166 Cong. Rec. H1960 (daily ed. Apr. 24, 2020).

In the State Agencies

"In the State Agencies" contains summaries of notable state regulatory developments reported during the month of April 2020. The entries are arranged by state, and within each section, entries are further subdivided by subject matter. To access *ELR*'s entire collection of state regulatory developments, visit https://elr.info/administrative/state-updates.

ALABAMA

WASTE

The Alabama Department of Environmental Management proposed to amend Ala. Admin. Code r. 335-13-15. The amendments would clarify state requirements for the management of solid waste and achieve consistency with federal statutes. *See* www.alabamaadministrativecode.state.al.us/UpdatedMonthly/AAM-MAR-20/335-13-15.pdf (Mar. 31, 2020).

ARIZONA

AIR

The Arizona Department of Environmental Quality proposed to amend Ariz. Admin. Code §18-2-327. The amendments would require all stationary sources located in ozone nonattainment areas that emit ozone precursors to submit annual emission statements. *See* 26 Ariz. Admin. Reg. 653 (Apr. 10, 2020).

COLORADO

NATURAL RESOURCES

The Colorado Department of Natural Resources proposed to amend 2 Colo. Code Regs. §407-2, the regulations for coal mining. The amendments would make changes to ensure consistency with the Surface Mining Control and Reclamation Act and revise revegetation, topsoil, and land use provisions to align with 2006 federal rule changes. *See* https://www.sos.state.co.us/CCR/DisplayHearingDetails.do?trackingNumber=2020-00116 (Mar. 25, 2020).

DELAWARE

AIR

The Delaware Department of Natural Resources and Environmental Control proposed to adopt 7 Del. Admin. Code §1151. The adoption would establish prohibitions and requirements for the use and manufacture of hydrofluorocarbons in Delaware, according to their specific end-uses and incorporate specific EPA Significant New Alternatives Policy Program prohibitions. *See* 23 Del. Reg. Regs. 841 (Apr. 1, 2020).

LOUISIANA

WASTE

The Louisiana Department of Environmental Quality proposed to amend its hazardous waste regulations. The amendments would incorporate federal guidelines for generators to provide greater flexibility in hazardous waste management. *See* 46 La. Reg. 412 (Mar. 20, 2020).

MISSOURI

WILDLIFE

The Missouri Department of Conservation proposed to amend Mo. Code Regs. Ann. tit. 3, §10-4.111. The amendments would add the Caney Mountain Cave crayfish to the state endangered species list. *See* 45 Mo. Reg. 455 (Apr. 1, 2020).

NEW JERSEY

WASTE

The New Jersey Department of Environmental Protection proposed to amend 52 N.J. Admin. Code §7:26D, concerning remediation efforts on brownfield sites. The amendments would revise remediation standards for contaminated sites throughout the state, including the replacement of site-specific soil remediation standards for the impact to the groundwater exposure pathway with codified soil and soil leachate remediation standards and the addition of indoor air remediation standards for the vapor intrusion pathway. Comments are due June 5, 2020. *See* http://www.lexisnexis.com/hottopics/njoal/ (Apr. 6, 2020).

OREGON

WILDLIFE

The Oregon Department of Fish and Wildlife proposed to amend Or. Admin. R. 635-100-0125 and -0137. The amendments would reclassify the marbled murrelet from threatened to endangered in the state list of threatened and endangered species, and modify survival guidelines for the species. *See* https://secure.sos.state.or.us/oard/viewRedlinePDF.action?filingRsn=44047 (Mar. 19, 2020).

UTAH

AIR

The Utah Department of Environmental Quality proposed to amend Utah Admin. Code r. 307-101-3 to incorporate by reference existing federal air quality regulations. *See* 7 Utah Bull. 14 (Apr. 1, 2020).

WASHINGTON

WASTE

The Washington Department of Ecology proposed to amend Wash. Admin. Code §§04-24-065, 09-14-105, 15-01-123, 19-04-038, 95-22-008, and 98-03-018. The amendments would update specific sections of the state's dangerous waste regulations to incorporate new federal hazardous waste rules. *See* http://lawfilesext.leg.wa.gov/law/wsr/2020/08/20-08-048.htm (Mar. 25, 2020).

WEST VIRGINIA

WATER

The West Virginia Division of Water and Waste Management proposed to amend its assessment methodology for the biological component of the narrative criteria in wadeable streams. *See* XXXVII W. Va. Reg. 3 (Mar. 27, 2020).

The West Virginia Division of Water and Waste Management proposed amendments to requirements governing water quality standards. *See* XXXVII W. Va. Reg. 3 (Apr. 3, 2020).

In the World

"In the World" features notable developments reported in the international secton of *ELR Update* during the month of April 2020. Current and archived materials, and links to primary news sources, can be found on *ELR*'s website at https://elr.info/international/international-update.

CLIMATE CHANGE

U.N. POSTPONES 2020 CLIMATE CHANGE CONFERENCE DUE TO PANDEMIC

On April 1, the United Nations announced it would postpone this year's climate change conference to 2021 due to the COVID-19 pandemic (UNFCCC). The talks, originally to be held November 9-20 in Glasgow, mark the five-year deadline for countries to update their national climate targets according to the Paris Agreement of 2015. Organizers of the 2020 conference called for an urgent ramp-up in climate ambitions in order to minimize global temperature rise (The Guardian, New York Times).

Analysts say the postponement to 2021 could significantly shift the political dynamics at the Glasgow conference. Although the United States began to withdraw from the Paris Agreement last year, if a Democratic candidate is elected in the upcoming U.S. presidential election, countries may be inclined to scale up climate efforts in anticipation of the U.S. rejoining. In addition, the need for many countries to put forth major economic stimulus packages due to the pandemic may reframe the negotiations around rebuilding climate-resilient economies (Reuters, BBC).

The week of March 30, Japan announced its revised climate target, which effectively maintained its original emissions plan (AP News). Frans Timmermans, the European Union's climate chief, stated, "As for the European Commission, we will not slow down our work domestically or internationally to prepare for an ambitious COP26, when it takes place" (Reuters). The conference center in Glasgow intended for the November climate talks is being turned into an emergency field hospital for people with COVID-19 (New York Times).

GOVERNANCE

EUROPEAN LEADERS CALL FOR GREEN DEAL MEASURES IN PANDEMIC RECOVERY

European leaders called for green investments in their coronavirus recovery plans, citing the need for clean air and a circular economy to rebuild resilience. On April 15, European Commission President Ursula von der Leyen reaffirmed strong support for the European Green Deal, which aims for zero carbon emissions in the European Union (EU) bloc by 2050. "On the European Green Deal, the political necessity is as strong as it was before the crisis because climate change and global warming did not stop," said von der Leyen (Bloomberg).

The statement followed an April 14 letter issued by 180 politicians, companies, trade unions, activists, and nonprofits, urging the EU to adopt environmental stimulus measures to rebuild the economy after the pandemic. A separate letter, signed by 10 EU countries including France, Germany, and Greece, also supported advancing Green Deal measures in recovery plans. Countries in favor of relaxing climate measures due to the pandemic included the Czech Republic and Poland (Reuters).

Other EU leaders in support of a green recovery included European Council President Charles Michel and EU climate chief Frans Timmermans (Bloomberg). "It is a false contradiction to say that the Green Deal is a luxury we cannot afford. The floods, droughts, wildfires, sea rise, and desertification are going to hit us hard. Moreover, retreating nature and melting permafrost will confront us with more unknown viruses," Timmermans wrote in an article published April 16 (EURACTIV).

WILDLIFE

LOCKDOWN HALTS TOURISM REVENUE TO WILDLIFE CONSERVATION IN AFRICA, SOUTHEAST ASIA

As borders closed this past month in an effort to stem the spread of COVID-19, Africa's $39 billion tourism industry and the conservation projects that rely on its revenues have come to a sudden halt. Environmentalists feared that huge losses in conservation funds and potentially increased poaching may lead to disastrous effects for threatened and endangered animals (Reuters).

Many African countries, including Botswana, Kenya, South Africa, and Tanzania, depend on revenue from tourism to fund wildlife conservation. In South Africa, 85% of funding for the South Africa National Parks system came from the tourism industry in 2018 (New York Times). The lack of tourists led many wildlife industries to begin laying off employees or cutting pay. In Thailand, leaders of elephant sanctuaries found themselves short on food for elephants, yet unable to lay off staff or let elephants go since their elephants cannot survive in the wild (Reuters).

Experts feared that with the loss of salaries, communities may have to turn to bush meat poaching in order to survive (Reuters). In Botswana and South Africa, leaders of nonprofits including Rhino 911 and Rhino Conservation Botswana noticed unprecedented poaching of rhinos in tourism hotspots that, until now, rarely saw poaching of wildlife. Without tourists and tour guides to help monitor millions of acres of wilderness, animals like rhinos and elephants become more vulnerable to poaching (New York Times).

RECENT JOURNAL LITERATURE

"Recent Journal Literature" lists recently published law review and other legal periodical articles. Within subject-matter categories, entries are listed alphabetically by author or title. Articles are listed first, followed by comments, notes, symposia, surveys, and bibliographies.

AIR

Kim, Tina, *SB 743 and Newhall Ranch's Net Zero Emissions Project: Impacts on the GHG Emissions Threshold and Implications for Greenfield Development in Los Angeles*, 28 S. Cal. Interdisc. L.J. 275 (2018).

Svirsky, Gary et al., *Current Trends in Application of the Absolute Pollution Exclusion in CGL Policies: Cross-Border Comparison Between New York and Canadian Laws*, 34 J. Envtl. L. & Litig. 97 (2019).

CLIMATE

Ajax, Caitlin M. & Diane Strauss, *Corporate Sustainability Disclosures in American Case Law: Purposeful or Mere "Puffery"?*, 45 Ecology L.Q. 703 (2018).

Babcock, Hope M., *The Federal Government Has an Implied Moral Constitutional Duty to Protect Individuals From Harm Due to Climate Change: Throwing Spaghetti Against the Wall to See What Sticks*, 45 Ecology L.Q. 735 (2018).

Banthia, Vinita, *Establishing an "International Climate Court,"* 34 J. Envtl. L. & Litig. 111 (2019).

Carlarne, Cinnamon & JD Colavecchio, *Balancing Equity and Effectiveness: The Paris Agreement and the Future of International Climate Change Law*, 27 N.Y.U. Envtl. L.J. 107 (2019).

Keenan, Patrick J., *International Criminal Law and Climate Change*, 37 B.U. Int'l L.J. 89 (2019).

Kelly, Carolyn, *Where the Water Meets the Sky: How an Unbroken Line of Precedent From Justinian to* Juliana *Supports the Possibility of a Federal Atmospheric Public Trust Doctrine*, 27 N.Y.U. Envtl. L.J. 183 (2019).

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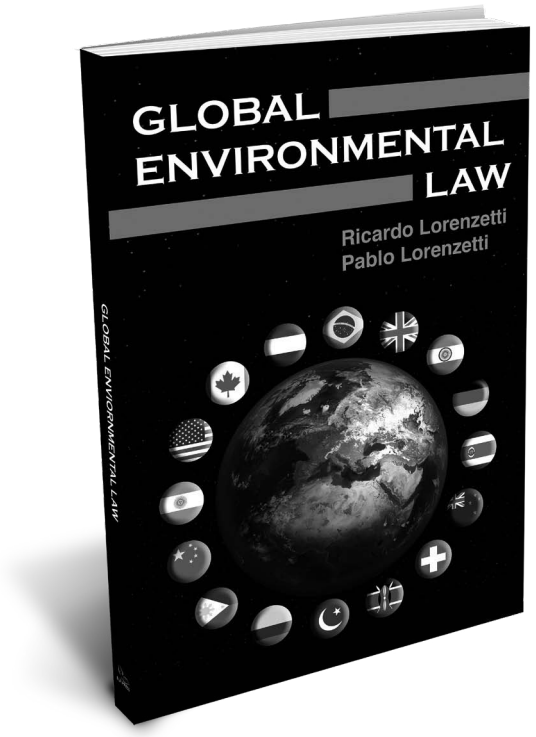
WILDLIFE

Global Environmental Law

By Ricardo Luis Lorenzetti and Pablo Lorenzetti

All around the world, nations have established legal frameworks to protect our environment. While many of these frameworks share similar goals and objectives, they hold important differences as well.



In *Global Environmental Law*, Justice Ricardo Lorenzetti and Prof. Pablo Lorenzetti offer a holistic view of modern environmental law. In it, they describe the history and purpose behind environmental rule of law, delve into the nuances of varying regulatory structures, and offer insight into how environmental law is implemented around the world—be it voluntary or mandatory. The book also includes an annex that illustrates how environmental law is changing across the globe—a must-have resource for today's legal scholars and practitioners.

About the Authors

Ricardo Luis Lorenzetti is Justice of the Supreme Court of Argentina, Organization of American States Goodwill Ambassador for Environmental Justice, Member of the Interim Governing Committee Global Judicial Institute on the Environment, Director of the Master on Environmental Law at the University of Buenos Aires, Member of the Advisory Committee of United Nations Environment Programme, and Member of the World Commission on Environmental Law of the International Union for the Conservation of Nature.

Pablo Lorenzetti is Professor of the Master on Environmental Law at the University of Buenos Aires and the author of various books about environmental law.

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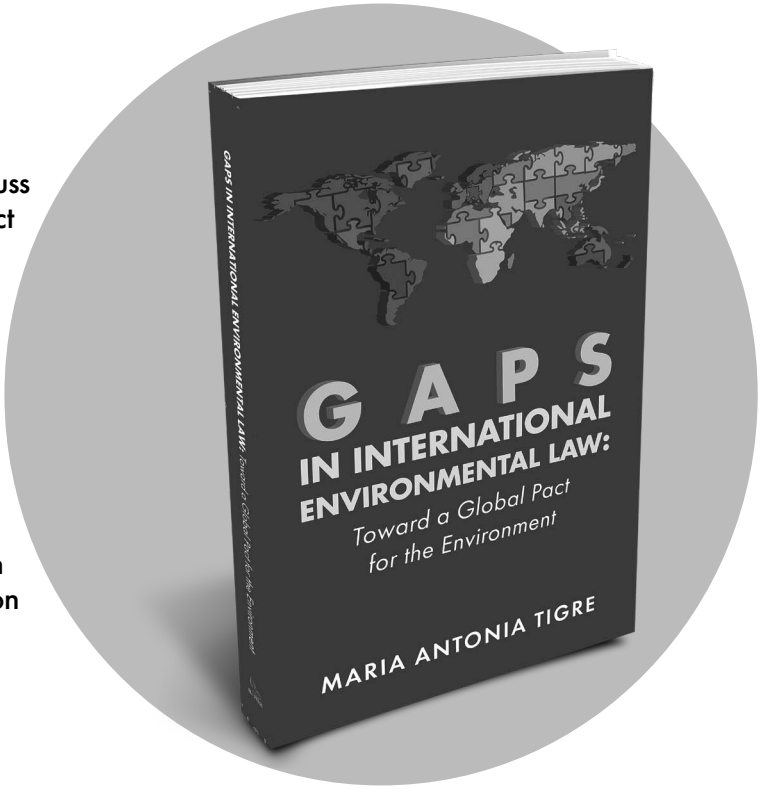
Gaps in International Environmental Law: *Toward a Global Pact for the Environment*

by Maria Antonia Tigre

The United Nations has set in motion a process to discuss and potentially reach agreement on a Global Pact for the Environment. This book informs those discussions, providing a deep dive into the challenges that characterize international environmental law today as well as the necessary background on the past five decades during which these frameworks were created. The book also describes contemporary negotiations about how, and even whether, to clarify and strengthen the norms that guide us today. By providing a clear picture of the competing trajectories of the current state of the law and our environment, this book equips readers with the knowledge and confidence to shape the future evolution of international environmental law.



"Maria Antonia Tigre has created a much-needed resource for all of us working toward a Global Pact for the Environment."

Yann Aguila
Environmental Law Commission Chair, Club des Juristes

"The development of the Global Pact for the Environment represents the most important single event in the formation of international environmental law since the Rio Declaration in 1992. The debates over the content and strategy of the Global Pact raise questions over what soft law, principles, and sustainable development can mean (and should mean) in the 21st century. Maria Antonia Tigre's deep and informed analysis provides an invaluable history and assessment of this important work in progress."

James Salzman
Law, UCLA Law School
Co-author, International Environmental Law and Policy

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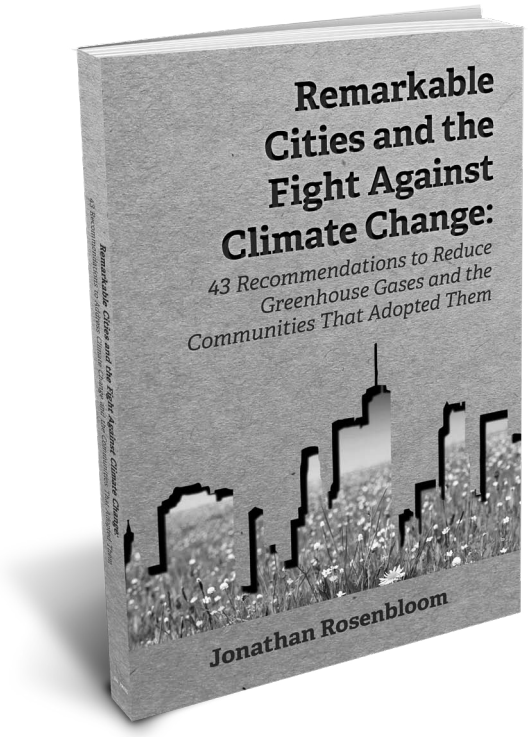
Remarkable Cities and the Fight Against Climate Change

43 Recommendations to Reduce Greenhouse Gases and the Communities That Adopted Them

By Jonathan Rosenbloom



Our cities and communities face an uncertain and daunting future. Diverse challenges, including an increasingly warmer and erratic climate, losses of biodiversity, disparities in economic equality, and state and federal hostility to local action, test the survival of many communities. Paralleling these challenges is an explosion of development that will rival post-World War II land use expansion. Yet, most development codes are decades old and not prepared to confront today's changes, and many local governments do not have the time or resources to research and address the myriad of changes and uncertainty they face.

The Sustainability Development Code (SDC) project provides concrete ways for communities to amend development codes and adapt to new challenges as they occur. The SDC aims to help all local governments, regardless of size and budget, build more resilient, environmentally conscious, economically secure, and socially equitable communities. In tandem with the SDC project, this book arms local governments with a diversity of approaches to meet the climate change challenge, focusing on actions that are traditionally within local governments' land use and development authority.

About the Author

Jonathan Rosenbloom is the Dwight D. Opperman Distinguished Professor of Law at Drake Law School. His scholarship explores issues relevant to local governments and sustainability, with a particular focus on land use. He is a former U.S. Circuit Court clerk, attorney for the federal government and a large law firm, and commissioner on the Des Moines Plan and Zoning Commission. He is also the founding director of the Sustainable Development Code, a model land use code providing local governments with the best sustainability practices in land use. Jonathan has degrees from the Rhode Island School of Design, New York Law School, and Harvard Law School.

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